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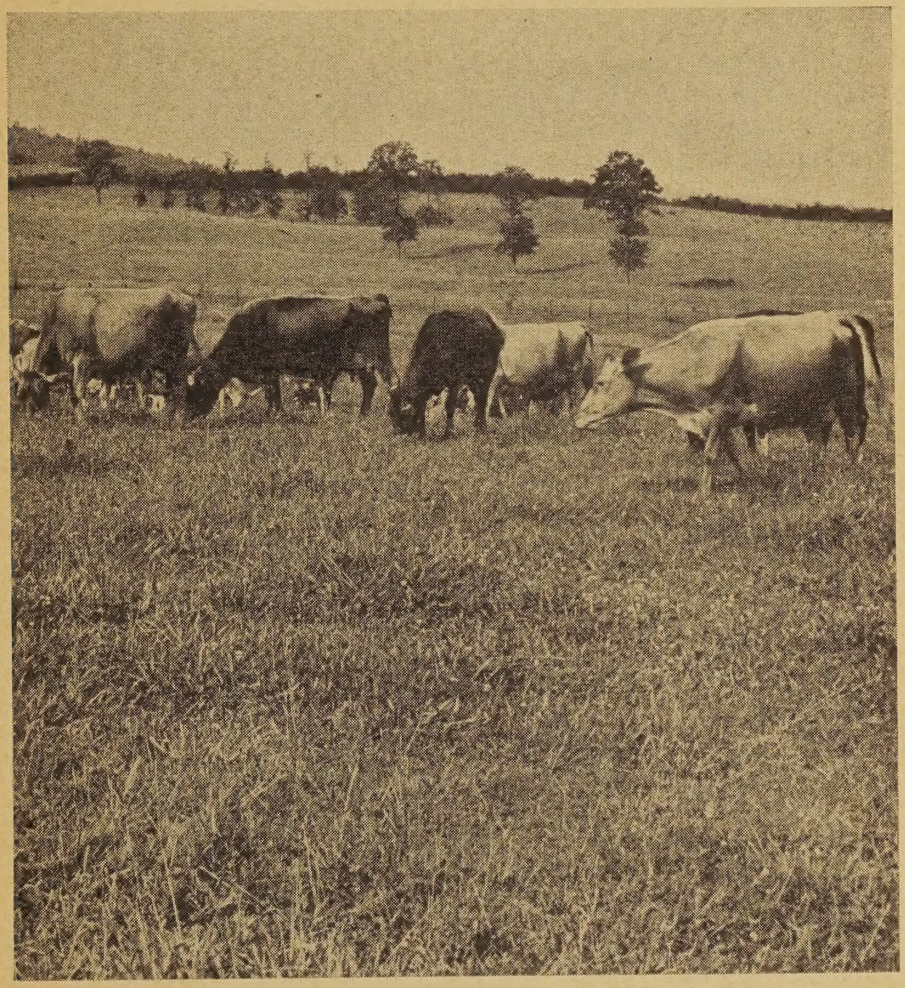
Delaware Handbook of Conservation Practices 1946



UNITED STATES DEPARTMENT OF AGRICULTURE
PRODUCTION AND MARKETING ADMINISTRATION
FIELD SERVICE BRANCH

Washington, D. C.

Issued October 1945

FOREWORD

Wartime demands have placed a heavy strain upon the Nation's farmland. Delaware farmers put their "hands to the plow" and went all-out to produce their share of the crops and livestock products needed to win the war. In this magnificent effort, they willingly subjected their land to undue erosion hazards and excessive soil depletion by growing record acreages of row crops.

Now that the war is over, farmers once again can turn their efforts to restoring the fertility of their soil. Fertile land is essential to production of adequate supplies of agricultural products necessary to keep us a strong and healthy people.

The 1946 Agricultural Conservation Program for Delaware is aimed at assisting farmers in carrying out a sufficient volume of those practices which will rebuild and conserve the State's most valuable resource—its native soil.

The practices included in the 1946 program are based upon combined recommendations of community, county and State committeemen of the Field Service Branch; representatives of other agricultural agencies; and other farm leaders.

DELAWARE HANDBOOK OF CONSERVATION PRACTICES—1946

The 1946 Agricultural Conservation Program offers assistance to Delaware farmers to restore and conserve the fertility of the soil through the use of conservation practices. The program year begins January 1, 1946, and ends December 31, 1946.

In order to encourage the performance of practices which are needed most, the county committee may select from the list of approved practices those which will be applicable to farms in the county.

Each farmer should confer with his county or community committeeman to plan how the Program can be of greatest assistance in obtaining the maximum conservation on his farm.

CONSERVATION MATERIALS AND SERVICES

Liming materials, superphosphate, and other designated conservation materials and services may be furnished by the Field Service Branch, Production and Marketing Administration, in lieu of cash payments. The Government will pay part of the cost of the material or service and the farmer will pay part.

PRACTICES AND PAYMENTS

Assistance under the Program will be available to the extent approved by the county committee for carrying out practices listed herein on any farm during the 1946 program year. Payments under this program are subject to the appropriation hereafter provided for this purpose by the Congress.

To qualify for payment, each practice must be performed in accordance with approved specifications for the practice and must be in keeping with good farming methods for the locality. The county committee will require evidence (bills, receipts, seed tags, etc.) to be submitted by the farmer in support of reports of practices carried out with materials or seeds, excluding conservation materials furnished by the Field Service Branch, Production and Marketing Administration.

APPLICATION OF MATERIALS

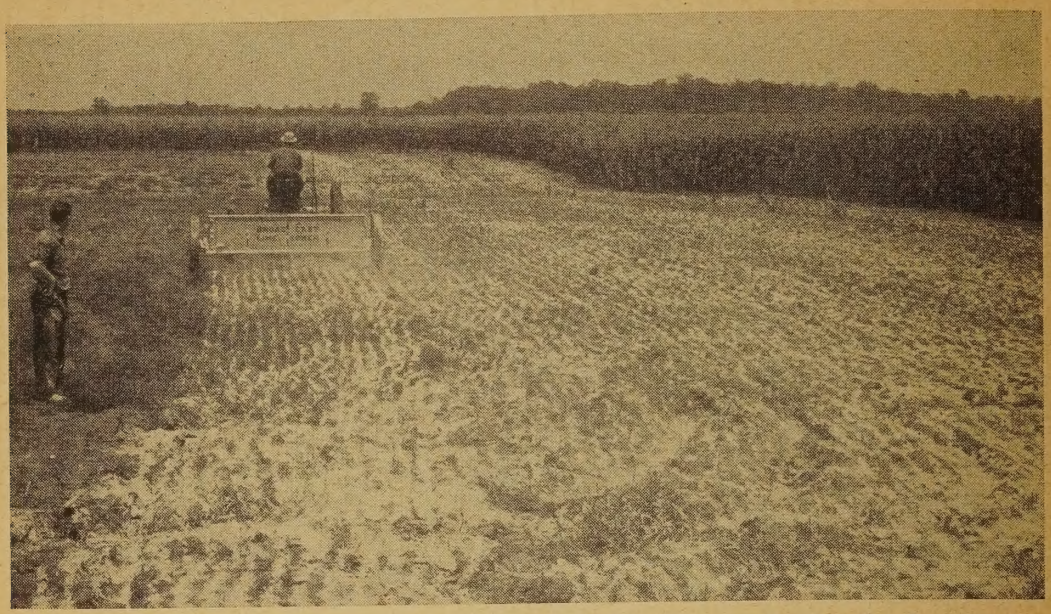
1. **Liming materials.**—Applying the following liming materials to farmland:

County	Credit rate per ton		
	Ground limestone or equivalent (see note)	Hydrated lime	Burned lime
	a	b	c
Kent	$4.25	$6.00	$8.50
New Castle	4.00	5.50	8.00
Sussex	4.50	6.25	9.00

NOTE.—For the purpose of this practice the following will be considered to be equivalent to **one ton** of standard ground limestone:

2,000 pounds of ground oyster shells meeting the chemical and mechanical specifications for standard ground limestone.
3,000 pounds of ground limestone screenings.

3,000 pounds of ground oyster shells containing all the finer particles obtained in the grinding process of which less than 100 percent will pass a 10-mesh sieve.
3,000 pounds of paper mill refuse liming product.



This farmer has learned the value of applying lime to his farmland

Specifications: Standard ground limestone shall contain calcium and magnesium carbonates equivalent to not less than 90 percent calcium carbonate and must be fine enough that 100 percent shall pass through a 10-mesh sieve. Ground limestone not meeting the above specifications will be considered as limestone screenings. The application of liming materials contained in commercial fertilizers will not qualify for payment under this practice.

2. **Phosphate.**—Applying phosphate materials to eligible crops.

Credit rate: 4 cents per pound of available P_2O_5. This rate is equivalent to 80 cents per 100 pounds of 20 percent superphosphate, or 72 cents per 100 pounds of 18 percent superphosphate.
Specifications: Phosphate materials may be applied **only** to:

(a) Permanent pasture;
(b) The following legumes and grasses seeded **alone** in the fall of 1945 or during the 1946 program year: perennial or biennial legumes, perennial grasses, or annual lespedeza;
(c) The same crops included under (b) above seeded **with a small grain nurse crop** in the fall of 1945 or in the spring of 1946, if applied after the small grain is harvested, or, if not harvested, after June 30, 1946, or
(d) Winter legumes or ryegrass seeded after June 30, 1946, with or without a nurse crop.

3. **Potash.**—Applying potash materials to eligible crops.

Credit rate: 3 cents per pound of available K_2O. This rate is equivalent to $1.80 per 100 pounds of 60 percent muriate of potash.
Specifications: Potash must be applied in accordance with the specifications for phosphate materials under practice 2.

COVER CROPS

4. **Winter cover crops.**—Establishing a winter cover crop in the fall of 1946 from seedings of crimson clover, hairy vetch, or annual ryegrass.

Credit rate: Payment will be made at the following rates for winter cover crops established with seed not furnished by the Field Service Branch:

a. Crimson clover or hairy vetch—**$2.50 per acre.**
b. Annual ryegrass—**$2.00 per acre.**

Payment for mixtures of the above crops will be made at the lowest rate applicable to any crop included in the mixture, except that if the mixture includes a full seeding of a single crop, the credit rate for that crop will apply.

The credit rate for use of seed furnished by the Field Service Branch will be the same as the deduction rate.

Winter cover crops protect the land from erosion and increase fertility when turned as green manure

Specifications: The seeding must be performed in accordance with good farming practice, which shall include: A well prepared seedbed; a full seeding of adapted seed; inoculation for legume crops unless a recent crop of the same legume or another requiring the same inoculant has been grown on the land seeded; and the application of liming material, phosphate, or potash where necessary to insure a good stand and good growth.

Credit will be allowed for a full seeding of one or more of these crops with a small grain nurse crop. Ryegrass is limited to cropland and orchards. No credit will be allowed under this practice for any acreage on which the county committee determines that a good stand and good growth was not obtained. The following seeding rates per acre are recommended by the Delaware Agricultural Experiment Station:

Crimson clover: 20 to 25 pounds per acre broadcast where the land is well inoculated; 30 pounds per acre where crimson clover has not been grown recently. One-third more seed should be used when they are sown in the hull.

Hairy vetch: 20 to 25 pounds per acre broadcast where the land is well inoculated; 25 to 30 pounds per acre where vetch has not been grown recently.

Ryegrass: 20 pounds per acre.

5. **Small grains.**—Establishing a satisfactory winter cover from seedings of rye, oats, barley, wheat, or mixtures of these crops, made in the fall of 1945—**$1.50 per acre.**

Specifications: A satisfactory cover will be considered to have been estab-

lished when the land is uniformly covered with a growth from which a reasonable tonnage of forage could be harvested. The crop must not be harvested for grain or cut for hay. Recommendations of the Delaware Agricultural Experiment Station should be followed with respect to seedbed preparation, seeding rates per acre, and planting dates. Seed should be sown sufficiently early to permit plants to withstand winter freezes.

6. **Soybeans alone.**—Establishing a summer cover crop from seedings of soybeans from which seed is not harvested—**$1.50 per acre.**

Specifications: The land should be uniformly covered with a growth from which a reasonable tonnage of forage could be obtained if harvested. The forage must be turned and followed by a fall-sown crop, or left on the land during the following winter.

PASTURE

7. **Permanent pasture.**—Establishing a permanent pasture—**$5.00 per acre.**

Specifications: A satisfactory stand of adapted pasture perennial grasses, perennial legumes, or a combination of such grasses and legumes must be established. The seedbed must be firm before the seeds are sown. Liming and fertilizer materials, where necessary to insure a good stand and good growth, should be applied at or before the time of seeding.

To establish a good stand, the following seeding rates per acre are recommended: At least 15 pounds per acre of an adapted permanent pasture mixture must be sown on land properly prepared. The pasture mixture must contain at least 20 percent by weight of alsike clover, white clover, Ladino clover, or a mixture of these legumes, and at least 30 percent by weight of orchard grass, meadow fescue, brome grass, perennial ryegrass, tall fescue, Reed canary grass, or a mixture of these grasses.

EROSION CONTROL

8. **Field stripcropping.**—Establishing alternate strips of row crops, and sown, close-drilled, or sod crops to prevent wind erosion—**50 cents per acre.**

Specifications: The strips must be not less than 80 feet nor more than 100 feet in width and must be established at right angle to the prevailing wind.

9. **Contouring row crops.**—Contour farming of row crops—**$1.00 per acre.**

Specifications: The cultural operations incident to preparing the land and growing the crop must be performed on the contour following guide lines established on the contour by, or under the supervision of, a qualified person approved by the county committee.

OTHER PRACTICES

10. **Open ditch drainage.**—Constructing or enlarging drainage ditches—**8 cents per cubic yard of dirt removed,** not to exceed 8 cents per linear foot.

Specifications: The ditches must be laid out by or under the supervision of a qualified person approved by the county committee and when completed must meet detailed specifications approved by the State Committee. Payment will not be made with respect to the dirt removed from any ditch unless adequate provision is made for the entrance of water into and out of the ditch. No payment will be made for cleaning out existing ditches.

11. **Harvesting seeds.**—Harvesting seed from a good stand of crimson clover, hairy vetch, red clover, or alsike clover—**$3.50 per acre,** not to exceed 10 acres per farm.

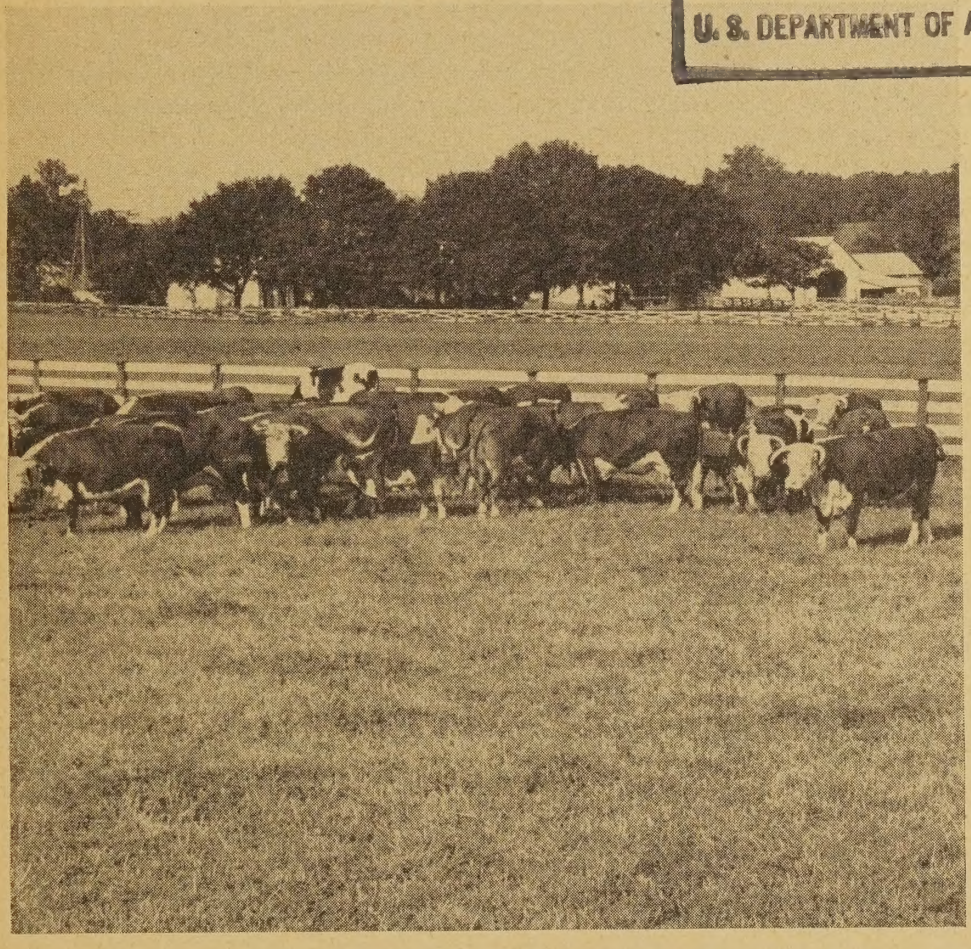
Specifications: The yield of seed obtained must be reasonable for the community.

Well constructed drainage ditches mean more productive land for crops and pastures

Harvesting seed of urgently needed legumes and grasses

U. S. GOVERNMENT PRINTING OFFICE: 1945

Kentucky Handbook of Conservation Practices 1946



UNITED STATES DEPARTMENT OF AGRICULTURE
PRODUCTION AND MARKETING ADMINISTRATION
FIELD SERVICE BRANCH

Washington, D. C. Issued December 1945

FOREWORD

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Now that the war is over, farmers once again can turn their efforts to restoring the fertility of their soil. Fertile land is essential to production of adequate supplies of agricultural products necessary to keep us a strong and healthy people.

The 1946 Agricultural Conservation program for Kentucky is aimed at assisting farmers in carrying out a sufficient volume of those practices which will rebuild and conserve the State's most valuable resource—its native soil.

The practices included in the 1946 program are based upon combined recommendations of community, county, and State committeemen of the Field Service Branch; representatives of other agricultural agencies; and other farm leaders.

KENTUCKY HANDBOOK OF CONSERVATION PRACTICES

Soil conservation under the Kentucky system of grass farming

HOW THE PROGRAM WORKS

The 1946 Agricultural Conservation Program for Kentucky offers assistance to each farmer in the State to restore and conserve the fertility of his soil through the use of conservation practices.

All farmers who carry out approved practices on their farms during the program year will be eligible to receive soil-conservation payments. Conservation materials furnished by the Field Service Branch, Production and Marketing Administration, may be accepted in lieu of payments.

Each farmer should confer with his county or community committeeman to plan how the program can be of greatest assistance in obtaining maximum conservation on his farm.

The 1946 program year begins January 1, 1946, and ends December 31, 1946.

SECTION A. FARM PRACTICE ALLOWANCE

A farm allowance will be determined for each farm in the State. Amounts earned within the farm allowance will be paid in full. The extent of approved practices carried out on the farm in excess of the farm allowance will be paid at the approved rate on a pro-rata basis to the extent of the unobligated portion of the funds allocated to the State.

The farm allowance for each farm will be the sum of the following items:

ITEM 1.—**60 cents times the acreage of cropland on the farm.** Cropland means farm land which in 1945 was tilled or was in regular rotation, including any land in planted or cultivated fruit trees, nut trees, vineyards, or bush fruits.

ITEM 2.—**35 cents times the acreage of fenced, noncrop, open pasture land on the farm in excess of one-half of the acreage of cropland.** Noncrop, open pasture land means pasture land (other than rotation pasture land) on which the predominant growth is forage suitable for grazing and on which the number or grouping of any trees or shrubs is such that the land could not be considered as woodland and is capable of maintaining during the normal pasture season at least one animal unit for each 5 acres. Animal unit means 1 cow, 1 horse, 5 sheep, 5 goats, 2 calves, or 2 colts, or the equivalent thereof.

Section. B. PRACTICES AND PAYMENTS

To qualify for payment, each practice must be performed in accordance with approved specifications for the practice and must be in keeping with good farming methods for the locality. The county committee will require evidence (bills, receipts, seed tags, etc.) to be submitted by the farmer in support of reports of practices carried out with materials or seeds, excluding conservation materials furnished by the Field Service Branch, Production and Marketing Administration.

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APPLICATION OF MATERIALS

1. **Liming materials.**—Applying standard ground limestone, or equivalent material, to farmland.

Credit rate: Not more than 80 percent of the average cost delivered to farms in the county.

Specifications: Standard ground limestone shall contain calcium and magnesium carbonates equivalent to not less than 80 percent calcium carbonate and must be fine enough so that not less than 80 percent shall pass through a 10-mesh

Kentucky farmers have learned the value of applying liming materials to their farmland.

sieve, provided that either the calcium carbonate equivalent or the proportion of material passing through a 10-mesh sieve, or both, must be sufficiently greater than 80 percent so that the product of the multiplication of calcium carbonate equivalent by the percent of material passing through a 10-mesh sieve shall be not less than 0.72. All the finer particles obtained in the production process shall be included. Ground limestone not meeting the above specifications will be considered as limestone screenings.

For the purpose of this practice, each of the following will be considered to be equivalent to **one ton** of standard ground limestone:

1,400 pounds of burned or hydrated lime.
2,000 pounds of agricultural granulated slag meeting the chemical and mechanical specifications for standard ground limestone.
2,000 pounds of calcium silicate slag meeting the chemical and mechanical specifications for standard ground limestone.

3,000 pounds of ground limestone screenings.
3,000 pounds of agricultural marl having a calcium carbonate equivalent of not less than 55 percent calcium carbonate.

The application of liming materials contained in commercial fertilizers will not qualify for payment under this practice.

Liming materials should not be applied to land on which 2 or more tons per acre have been applied during the past 5 years unless a recent soil analysis indicates a need for additional materials.

2. **Phosphate.**—Applying phosphate materials to eligible crops.

Credit rate: 4½ cents per pound of available P_2O_5. This rate is equivalent to $.90 per 100 pounds of 20 percent superphosphate. For purposes of payment, 200 pounds of basic slag will be considered equivalent to 100 pounds of 20 percent superphosphate.

Specifications: Phosphate materials (except rock phosphate) may be applied **only** to:

(*a*) Permanent pasture;
(*b*) Hay crops;
(*c*) Perennial or biennial legumes, perennial grasses, or annual lespedeza, seeded **alone** in the fall of 1945 or in 1946;
(*d*) Grasses and legumes seeded in the fall of 1945 or spring of 1946 with a small grain nurse crop, if applied after the small grain crop is harvested, or, if not harvested, after June 30, 1946;
(*e*) Grasses and legumes seeded in the fall of 1945 or in 1946 with a small grain nurse crop, provided that not less than 80 pounds of available P_2O_5 is applied per acre;
(*f*) Cover crops in orchards; or
(*g*) Winter legumes or ryegrass seeded after June 30, 1946, with or without a nurse crop.

3. **Rock phosphate.**—Applying rock phosphate to farm land.

Credit rate: Not more than 50 percent of the average cost delivered to the farm.

Specifications: Rock or colloidal phosphate must be applied in accordance with good farming methods.

4. **Potash.**—Applying potash to eligible crops.

Credit rate: _____ cents per pound of available K_2O. This rate is equivalent to $_____ per 100 pounds of 50 percent muriate of potash.

Specifications: To qualify for payment, potash must be applied in accordance with the specifications for phosphate materials under practice 2 above.

COVER AND GREEN MANURE CROPS

5. **Winter cover crops.**—Establishing a winter cover of crimson clover, hairy vetch, annual ryegrass, or a mixture consisting solely of these crops from seedings made in the fall of 1946.

Credit rate: Payment will be made at the following rates:

a. Crimson clover_____ _____ cents per pound
b. Hairy vetch_____ _____ cents per pound
c. Annual ryegrass_____ _____ cents per pound

Specifications: The seeding must be performed in accordance with good farming practice, which shall include: A well-prepared seedbed; a full seeding of adapted seed; inoculation for legume crops, unless a recent crop of the same legume, or another requiring the same inoculant, has been grown on the land seeded; and the application of liming material, phosphate, or potash where necessary to insure a good stand and growth.

Credit will be allowed for a full seeding of one or more of these crops with a small grain nurse crop. Ryegrass is limited to cropland and orchards. No credit will be allowed under this practice for any acreage on which the county committee determines that a good stand and growth was not obtained.

Seeding rates per acre and dates of seeding recommended by the Kentucky Agricultural Experiment Station

Winter cover crop	Recommended seeding rates (pounds)		Recommended planting dates			
			Alone on prepared seedbed		With small grain	
	Alone	With small grain	North-central, Mountains and Bluegrass	South and west	North-central, Mountains and Bluegrass	South and west
Annual ryegrass	15–20	10	August	August to early September.	August	August to early September.
Crimson clover	15–20	10–12	August	August	August 1 to September 10.	August 15 to September 20.
Hairy vetch [1]	25–30	15–20	August 15 to September 15.	August 15 to September 25.	August 20 to September 20.	September.

[1] When a vetch and small grain mixture is to be harvested for seed, a seeding of 12 to 15 pounds of vetch is recommended.

6. **Small grains.**—Establishing winter cover from seedings of wheat, oats, barley, rye, or mixtures of these crops made in the fall of 1945—**$1.50 per acre.**

Specifications: To qualify for payment a protective winter cover must be provided and the crop may not be harvested for hay or grain. The seedbed should be well prepared and seed sown sufficiently early to permit plants to withstand winter freezes.

7. **Annual lespedeza.**—Establishing a good stand and a good growth of annual lespedeza—**$1.50 per acre.**

Specifications: To qualify for payment a satisfactory growth of lespedeza seeded in the spring of 1946 must be turned or disced as green manure and followed by a fall-sown crop or left on the land during the winter. Harvesting of seed is permitted. Payment will not be allowed if the lespedeza is grazed or cut for hay.

PASTURE

8. **Pasture development.**—Establishing or improving a permanent pasture by seeding adapted grasses and legumes.

Credit rate: Payment will be made at the following rates:

	Cents per pound		*Cents per pound*
a. Kentucky bluegrass	40	*f.* Alsike clover	34
b. Orchard grass	30	*g.* Alfalfa	40
c. Redtop	18	*h.* Sweet clover (scarified)	18
d. Timothy	9	*i.* Sweet clover (unhulled)	12
e. Red clover	38	*j.* Annual lespedeza	10

Specifications: In establishing a pasture, a mixture containing at least 50 percent by weight of adapted perennial grasses, perennial legumes, or a combination of such grasses and legumes must be seeded on a properly prepared seedbed. In pasture improvement either a perennial grass or a perennial legume listed above or a mixture containing such perennial grasses and legumes must be sown in accordance with good pasture management. Liming and fertilizing materials should be applied at or before seeding when necessary to insure a good stand and growth.

9. **Stockwater development.**—Excavating ponds or constructing water impounding dams for providing adequate supplies of water for livestock (*a*) **10 cents per cubic yard of earth moved;** (*b*) concrete—**$9.00 per cubic yard;** (*c*) rubble masonry—**$6.00 per cubic yard,** not to exceed $300 per development.

Specifications: Ponds or dams must be constructed in accordance with the detailed specifications under the general supervision of a qualified person recommended by the county committee and approved by the State committee. The maximum surface area of a pond must not exceed 1,000 square feet, at high water mark, for each one-half acre of drainage area. Adequate spillways must be provided, and the watershed area draining into such ponds must be protected from erosion by permanent grass or woods. This practice will not be approved on permanently running streams.

a. Selection of site: Location should be where drainage from barns and stocklots will not reach the pond. Areas with sink-holes, gravel beds, or outcropping layers of rock are unsatisfactory. Choose site where an open spillway can be easily constructed.

b. Construction: (1) All trees and other vegetable matter should be removed from the entire area to be covered by the dam.

(2) A core trench filled with impervious material should extend into the sub-soil.

(3) Earth fills should be thoroughly packed during construction. Add 10 percent to height at center to allow for settling.

(4) Spillway to be adequate to remove the maximum run-off experienced during the heaviest rains. Calculate size according to Kentucky Extension Circular 317. **DO NOT GUESS.**

(5) Spillway to be protected from erosion by masonry or vegetation as required by slope and expected volume and velocity of water.

(6) The pond should be protected from deposits of silt by a silt or settling basin or by an unbroken strip of sod to be maintained above the high-water mark of the reservoir, and not less than 100 feet in width at any point.

c. Minimum acceptable dimensions for stock pond: (1) Drainage area above pond to be not less than one acre.

(2) Minimum surface area 2,000 square feet at high-water mark.

(3) Minimum depth at deepest point six feet below bottom of spillway.

Farm ponds go hand in hand with successful livestock raising.

(4) Minimum depth of ¾ of area 4½ feet.

(5) Slopes 3 to 1 on the upper (wet) side.

(6) Slopes 2 to 1 on the lower (dry) side.

(7) Minimum top width of fill to be 6 feet.

(8) Top of dam should be at least 1½ feet above high-water level in the spillway.

EROSION AND WATER CONTROL PRACTICES

10. **Contouring row crops.**—Contour farming of row crops on land having 2 percent and not more than 20 percent slope—**$1.50 per acre.**

Specifications: The cultural operations incident to preparing the seedbed and planting and cultivating the crop must be carried out on the contour following guide lines established by, or under the general supervision of, a qualified

person approved by the county committee. The row crops must be followed in the fall of 1946 by small grains drilled or disked in on the contour in order to qualify such land for payment.

In planning for contouring of row crops all natural drainage ways in the field should be left in sod or seeded to grass mixtures to established protection from erosion.

Contour farming of row crops such as corn conserves moisture, prevents erosion, and increases yields.

11. **Terracing.**—Constructing standard terrace—**$1.00 per 100 linear feet.**

Specifications: The terrace system must be laid out and terraces constructed under the general supervision of a qualified person recommended by the county committee and approved by the State committee and must conform to engineering recommendations as approved by the State committee. Proper outlets must be provided and protected.

a. WHERE TERRACES SHOULD BE CONSTRUCTED.—(1) On croplands with slopes of more than 3 percent, but not to exceed an average of 12 percent. (12 feet of fall per 100 feet of horizontal distance.)

(2) On old meadow or pasture lands to control erosion while grasses are being reestablished.

(3) In all cases the slope of the land should be reasonably uniform and the soil at least 2 feet deep. Irregular or rough land with large gullies or frequent rock outcrops is impractical to terrace.

b. OUTLETS.—(1) Use well sodded, natural draws, if possible.

(2) If well sodded natural draws are not available, suitable outlets should be constructed and good sod established in them before constructing the terrace.

c. CONSTRUCTION.—(1) *Spacing of terraces*—According to the slope of the land, terraces should be spaced as shown in the table below:

Spacing of terraces for Kentucky conditions

Slope—feet per 100 feet	Vertical drop between terraces		Horizontal spacing (feet)	Linear feet per acre
	Feet	Inches		
3	3	0	100	435
4	3	6	87	495
5	4	0	80	545
6	5	5	72	600
7	4	8	66	650
8	5	0	62	700
9	5	3	60	750
10	5	6	55	790
11	5	9	52	835
12	6	0	50	875

Well constructed terraces help conserve valuable topsoil and moisture.

For eroded fields, the vertical drop should be reduced by 6 inches. On porous soils spacing may be increased by 10 percent and, in certain cases, in excess of 10 percent if previously approved by county committee, acting upon the advice of an experienced erosion engineer.

(2) *Length of terraces.*—Terraces should not exceed 1,200 feet in length.

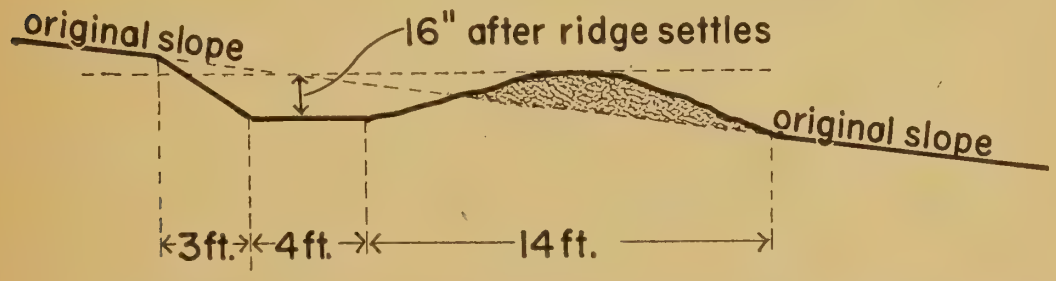
(3) *Channel grades.*—Grades in terrace channels should be as shown in the following table:

Fall in inches per 100 feet for variable grade terraces

Length of terrace (Feet)	*Maximum Fall per 100 feet* (Inches)
0 [1]–300	2
300–600	4
600–900	5
900–1,200	6

[1] At high point in terrace line.

(4) *Cross section.*—The cross section of each terrace should meet the minimum dimensions shown in the following sketch and the cross section of the terraces above the normal ground level must be at least 6 square feet.



(5) *Fills.*—Depressions or old gullies to be crossed by terraces should be filled in before building the terraces. Then the terrace ridges should be built up 25 percent higher to allow for settling in these places.

(6) *Cultivation.*—All tillage operations beginning with plowing must be on the contour or parallel to the terraces. Terracing is purely an erosion control practice. Good agronomy practices including approved crop rotation, lime and fertilizer as needed, and winter cover crops must be used along with terraces to secure best results.

12. **Diversion ditches.**—Constructing standard diversion ditches—**8 cents per cubic yard of soil moved,** not to exceed $3.00 per 100 linear feet.

Specifications: Each diversion ditch must be laid out and constructed under the general supervision of a qualified person recommended by the county committee and approved by the State committee in accordance with the detailed specifications.

Two types of diversion ditches are provided for under this practice—(1) hillside diversion ditches which are designed to reduce run-off and erosion on land too steep to terrace, on which the slope ranges from 12 to 20 percent. These ditches should never be substituted for terraces on land suited to terracing. (2) Diversion ditches used between noncropland and cropland to protect the cropland from run-off water or seepage from adjacent upland woods, pasture, or meadow. The design of these ditches is strictly an engineering problem.

The detailed specifications to be met before payment is approved for the practice are listed below for each of these types of ditch:

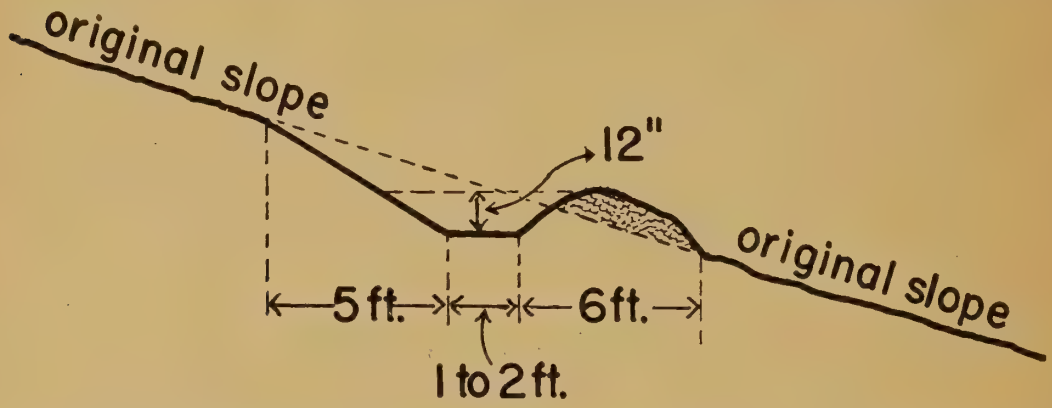
Hillside Diversion Ditches

a. Location: These ditches should be planned to allow movement of farm machinery from the lower sides of fields to ridge tops without crossing the ditches. This may be done by leaving a roadway at one end of the field or by providing an outlet at each end of the field and leaving a roadway in the middle of the field.

b. Spacing: In laying out hillside diversion ditches the first one should be staked out not more than 75 feet from the ridge top. Additional ditches should be at 60 feet intervals.

c. Grade: Channel grades may be from 1 to 2½-percent depending upon the nature of the subsoil. Heavy or rocky subsoils will stand the 2½-percent grade without undue scouring. In lighter subsoils that scour or wash easily, the channel grade should be kept to 1 to 1½ percent.

d. Dimensions: The channel should not carry water more than 600 feet. The cross section of the ditch should conform to measurements in the sketch below.



e. Sod strip: To protect the ditch from excessive silting, a strip of sod 10 feet wide should be left undisturbed or, if the land is not in grass, such a strip should be seeded immediately above the channel. The backslope, channel, and ridge should also be maintained in a mixture of pasture grasses and never disturbed except as necessary in maintaining the ditch.

Diversion Ditches Between Cropland and Noncropland

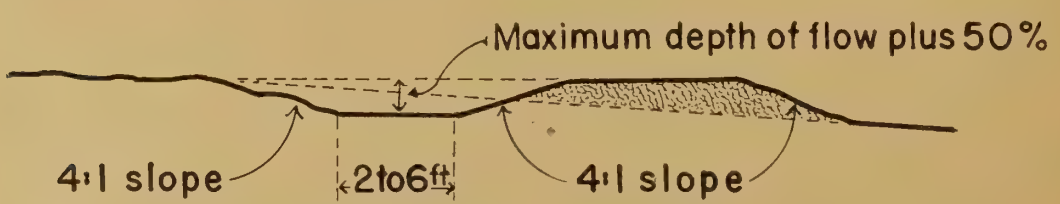
a. Channel capacity: The capacity of the diversion ditch channel must be sufficient to carry the run-off from the area of upland draining into it. For upland acreages up to 50 acres, the size of channel and gradient may be taken from the following table:

Approximate acreage various graded diversion ditches will drain (applies only to acreage of woodland or pasture above ditch)

Ditch grade per 100 feet	2-foot bottom width, depth of flow		4-foot bottom width, depth of flow		6-foot bottom width, depth of flow	
	12 inches	18 inches	12 inches	18 inches	12 inches	18 inches
6-inch	2	9	5	15	8	20
9-inch	4	14	7	20	10	30
12-inch	5	16	8	25	12	40
18-inch	7	20	10	40	14	50

For larger acreages, channel capacities should be calculated by a competent engineer.

b. Dimensions.—The cross section of the ditch should be similar in shape to that of a terrace, as illustrated in the sketch below.



As indicated, the dimensions of the channel and ridge will vary according to the size of diversion ditch needed. Generally, it is preferable to construct ditches with low gradients and shallow flow, which will require wider channels than for

ditches with more depth. In all cases, the depth of channel or ridge height should be 50 percent more than the depth of flow expected. For instance, for a 12-inch depth of flow the vertical measurement from the bottom of the channel to the top of the ridge should be 18 inches.

c. Sod strip.—All diversion ditch channels should be seeded and, if necessary, limed and fertilized to establish suitable grass mixtures to prevent undue scouring. Channels should be mowed often enough to keep weed growth from obstructing the flow of water.

13. **Sod waterways.**—Establishing permanent sod waterways on cropland—**75 cents per 1,000 square feet.**

Specifications: Waterways should be established, wherever possible, in existing natural draws or depressions and must extend to protected outlets. The waterway should have sufficient width to carry the maximum runoff from the area drained and should be at least 10 feet wide at the narrowest point, with edges sufficiently irregular to prevent edge erosion. The seedbed should be well prepared and a sufficient quantity of adapted legume and grass seed sown to assure a good stand. A close growing type of mixed grasses and legumes such as bluegrass, timothy, red top, Bermuda grass, lespedeza, white or alsike clover, should be sown and a sufficient growth obtained to protect the soil from erosion. The application of 1,000 pounds of complete fertilizer or 10 tons of stable manure per acre is recommended. Seedings made under this practice will not qualify for payment in connection with any other practice.

DRAINAGE

14. **Open ditch drainage.**—Constructing or enlarging drainage ditches (including lateral or lead ditches) for which proper outlets are provided—8 **cents per cubic yard** of soil moved, not to exceed $8.00 per 100 linear feet.

Specifications: Ditches must be laid out under the general supervision of a qualified person recommended by the county committee, approved by the State committee, and completed in accordance with the detailed specifications. Payment will not be made with respect to the soil removed unless the amount removed results in the construction of a ditch adequate to provide proper surface drainage. No credit will be allowed for the removal of soil from that portion of any farm ditch which is wholly or partially maintained by any Federal, State, or county appropriation.

a. The gradient of the ditch, as expressed in feet per 100 feet, shall not be decreased from one section of the ditch to another.

b. Side slopes of the ditch shall not be less than one to one, or one foot of horizontal distance to one foot of vertical distance.

c. Ditches established to remove water from or across bottom land shall be so located as not to be filled or partially filled by silt carried to the ditch by water flowing directly to the ditch from hill land.

d. The ditch must have adequate capacity to remove the normal excess surface water collected on the area to be drained.

e. Protected outlets must be provided.

15. **Tile drainage.**—Installing drain tile on farmland suitable for cultivated crops or improved meadows—**3 cents per linear foot.**

Specifications: The drainage system must be laid out and constructed under the general supervision of a qualified person recommended by the county committee, approved by the State committee and completed in accordance with the detailed specifications.

Tile drainage should be planned to provide adequate drainage of the land involved.

a. *Location of drains:* The location of tile drains is controlled generally by the location of the outlet and the topography of the land to be drained. Rolling land may sometimes be drained by laying random lines of tile where the soil is too wet for profitable cultivation. Such drains should be in the course of the natural flow. Level areas of considerable size require a survey by a drainage engineer.

b. *Grades:* The grades for tile lines should be established with a level.

c. *Size of tile:* Minimum size of tile—four inches.

d. *Capacity of tile mains:* The size of tile for mains should be not less than those indicated in the table below:

Areas in acres drained by tile mains [1] *(⅜-inch run-off per 24 hours)*

Size of tile in inches	Fall in inches per 100 feet									
	1 3/16	2 3/8	3 5/8	4 3/16	6	7 3/16	9	12	24	36
4	4	6	8	9	10	11	13	15	20	25
5	8	12	15	17	18	20	23	26	37	45
6	13	19	23	27	30	33	36	43	61	73
7	21	29	36	42	53	58	58	66	94	115
8	29	41	51	59	66	71	80	92	130	160
10	52	75	91	105	118	130	145	170	235	290
12	85	120	147	176	191	205	235	270	385	470

[1] For level land—no surface water.

3. *Depth:* (1) Minimum average depth of tile lines should be 2½ feet and at no point less than 1½ feet below the ground surface.

(2) Tile laid to drain seeps or wet weather springs should intercept the water at least 18 inches below the ground surface.

f. *Outlets:* (1) Outlet tile ends should be protected from erosion damage by concrete head walls or other means.

(2) Outlet tile should be screened to prevent entrance into them by muskrats, rabbits, and other small animals.

(3) Outlets entering a regularly flowing stream should be located above the normal highwater level of the stream.

FOREST TREE PLANTING

16. **Forest tree planting.**—Planting approved species of forest trees—**$7.50 per acre.**

Specifications: The following trees will qualify for payment when planted in accordance with the provisions of the paragraph immediately below:

Black cherry	Red cedar	White ash
Black locust	Red oak	White oak
Black walnut	Shortleaf pine	White pine
Cottonwood	Scaley bark hickory	Yellow poplar
Loblolly pine	Sugar maple	

Maximum spacing for black walnut should 8 x 8 feet; maximum spacings for all other species should be 6 x 6 feet. To qualify for payment, the trees must be protected from fire and grazing. The trees should be cultivated sufficiently to prevent them from being suppressed by native growth of weeds and undesirable species of shrubs and trees. Plantings of black walnut seedlings must show a survival of not less than 400 trees per acre evenly distributed over the land, and plantings of all other species must show a survival of not less than 700 trees per acre. In the case of white-pine plantings, credit will not be allowed unless all currant and gooseberry bushes present are removed from the planted area and throughout a surrounding border zone 900 feet wide to protect the white pine from blister rust damage.

HARVESTING SEED

17. **Harvesting seed.**—Harvesting seed from a good stand of alsike clover, biennial white or yellow sweet clover, crimson clover, red clover, white (Dutch) clover, or hairy vetch sown alone or with a small grain support crop—**$3.50 per acre,** not to exceed 10 acres per farm.

Specifications: Harvesting must be done in a workmanlike manner and a yield obtained which is reasonable for the community.

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Maryland Handbook of Conservation Practices 1946

UNITED STATES DEPARTMENT OF AGRICULTURE
PRODUCTION AND MARKETING ADMINISTRATION
FIELD SERVICE BRANCH

Washington, D. C.

Issued October 1945

FOREWORD

Wartime demands have placed a heavy strain upon the Nation's farmland. Maryland farmers put their "hands to the plow" and went all-out to produce their share of the crops and livestock products needed to win the war. In this magnificent effort, they willingly subjected their land to undue erosion hazards and excessive soil depletion by growing record acreages of row crops.

Now that the war is over, farmers once again can turn their efforts to restoring the fertility of their soil. Fertile land is essential to production of adequate supplies of agricultural products necessary to keep us a strong and healthy people.

The 1946 Agricultural Conservation Program for Maryland is aimed at assisting farmers in carrying out a sufficient volume of those practices which will rebuild and conserve the State's most valuable resource—its native soil.

The practices included in the 1946 Program are based upon combined recommendations of community, county, and State committeemen of the Field Service Branch; representatives of other agricultural agencies; and other farm leaders.

MARYLAND HANDBOOK OF CONSERVATION PRACTICES—1946

The 1946 Agricultural Conservation Program offers assistance to Maryland farmers to restore and conserve the fertility of the soil through the use of conservation practices. The program year begins January 1, 1946, and ends December 31, 1946.

In order to encourage the performance of practices which are needed most, the county committee may select from the list of approved practices those which will be applicable to farms in the county.

Each farmer should confer with his county or community committeeman to plan how the Program can be of greatest assistance in obtaining the maximum conservation on his farm.

CONSERVATION MATERIALS AND SERVICES

Liming materials, superphosphate, and other designated conservation materials and services may be furnished by the Field Service Branch, Production and Marketing Administration, in lieu of cash payments. The Government will pay part of the cost of the material or service and the farmer will pay part.

PRACTICES AND PAYMENTS

Assistance under the Program will be available to the extent approved by the county committee for carrying out practices listed below on any farm during the 1946 program year. Payments under this program are subject to the appropriation hereafter provided for this purpose by the Congress.

To qualify for payment, each practice must be performed in accordance with approved specifications for the practice and must be in keeping with good farming methods for the locality. The county committee will require evidence (bills, receipts, seed tags, etc.) to be submitted by the farmer in support of reports of practices carried out with materials or seeds, excluding conservation materials furnished by the Field Service Branch, Production and Marketing Administration.

APPLICATION OF MATERIALS

1. **Liming materials.**—Applying the following liming materials to farm land:

County	Payment rate per ton			County	Payment rate per ton		
	Ground limestone or equivalent (see note)	Hydrated lime	Burned lime		Ground limestone or equivalent (see note)	Hydrated lime	Burned lime
Alleghany	$3.65	$5.20	$7.30	Howard	$4.15	$5.95	$8.30
Anne Arundel	4.90	7.00	9.80	Kent	4.80	6.85	9.60
Baltimore	3.75	5.35	7.50	Montgomery	4.15	5.95	8.30
Calvert	4.85	6.90	9.70	Prince Georges	4.90	7.00	9.80
Caroline	4.70	6.70	9.40	Queen Annes	4.80	6.85	9.60
Carroll	4.00	5.70	8.00	St. Marys	5.55	7.95	11.10
Cecil	3.90	5.60	7.80	Somerset	5.05	7.20	10.10
Charles	4.90	7.00	9.80	Talbot	4.80	6.85	9.60
Dorchester	5.00	7.15	10.00	Washington	3.45	4.95	6.90
Frederick	4.00	5.70	8.00	Wicomico	5.00	7.15	10.00
Garrett	4.40	6.30	8.80	Worcester	5.20	7.45	10.40
Harford	3.80	5.45	7.60				

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NOTE.—For the purpose of this practice, the following will be considered to be equivalent to **one ton** of ground limestone:

2,000 pounds of ground oyster shells meeting the chemical and mechanical specifications for ground limestone.
2,000 pounds of agricultural marl meeting the chemical specifications for ground limestone.
3,000 pounds of limestone screenings.
3,000 pounds of refuse liming material.
3,000 pounds of ground oyster shells not meeting chemical and mechanical specifications for ground limestone.
3,000 pounds of paper mill refuse liming product.
3,000 pounds of liming material from acetylene plants.
4,000 pounds of agricultural slag.

Specifications: Ground limestone must have a calcium carbonate equivalent of at least 90 percent and must be fine enough that 100 percent will pass a 10-mesh sieve; hydrated lime must have a calcium carbonate equivalent of at least 120

This Maryland farmer has learned the value of applying liming material to his farmland

percent; burned lime must have a calcium carbonate equivalent of at least 145 percent. Ground limestone not meeting the specifications above will be considered as limestone screenings. The application of liming materials contained in commercial fertilizers will not qualify for credit under this practice.

No credit will be allowed for the application of liming material to farmland which the county committee determines was not protected against erosion during the winter following the application of the material. Land left in sod (including also the forage of soybeans) or planted to a fall-sown crop or (in counties designated by the State committee) land which is fall-plowed will be considered as protected against erosion during the winter.

2. **Phosphate.**—Applying phosphate materials to eligible crops.

Credit rate: 3 cents per pound of available P_2O_5. This rate is equivalent to 60 cents per 100 pounds of 20 percent superphosphate.

Specifications: Phosphate materials may be applied **only** to:

(a) Permanent pasture;
(b) Established hay crops;
(c) New seedings of grasses and legumes (except soybeans or cowpeas) without a small grain nurse crop;
(d) Grasses and legumes seeded in the fall of 1945 or spring of 1946 with a small grain nurse crop, if applied after the small grain crop is harvested, or, if not harvested, after June 30, 1946;
(e) Crimson clover, vetch, or ryegrass seeded with or without a small grain nurse crop, provided that the material may be applied in the fall only;
(f) Cover crops in orchards.

Phosphate applied to permanent pastures increases growth and provides nutritious grazing

3. **Potash.**—Applying potash materials to eligible crops.

Credit rate: 2 cents per pound of available K_2O. This rate is equivalent to $1.00 per 100 pounds of 50 percent muriate of potash.

Specifications: Same as for phosphate under practice 2 above.

COVER CROPS

4. **Winter cover crops.**—Establishing a winter cover crop in the fall of 1946 from seedings of crimson clover, hairy vetch or annual ryegrass.

Credit rate: Payment will be made at the following rates for winter cover crops established with seed not furnished by the Field Service Branch:

a. Crimson clover—**$2.50 per acre.**
b. Hairy vetch—**$3.00 per acre.**
c. Annual ryegrass—**$2.00 per acre.**

Payment for mixtures of the above crops will be made at the lowest rate applicable to any crop included in the mixture, except that if the mixture includes a full seeding of a single crop the credit rate for that crop will apply.

Specifications: The seeding must be performed in accordance with good farming practices, which shall include: a well-prepared seedbed; a full seeding of adapted seed; inoculation for legume crops unless a recent crop of the same legume or another requiring the same inoculant has been grown on the land seeded; and the application of liming material, phosphate, or potash where necessary to insure a good stand and good growth.

Credit will be allowed for a full seeding of one or more of these crops with a small grain nurse crop. Ryegrass is limited to cropland and orchards. No credit will be allowed under this practice for any acreage on which the county committee determines that a good stand and good growth were not obtained. The following are seeding rates per acre and dates of seeding recommended by the Maryland State Experiment Station and Extension Service:

Cover crop	Seeding rates per acre (pounds)	Planting dates	
		Southern area	Northern area
Crimson clover	15–25	July 1–Sept. 15.	
Hairy vetch	30–40	July 1–Oct. 15	July 1–Sept. 15.
Annual ryegrass	20–35	July 1–Oct. 1	July 1–Aug. 15.

5. **Small grains.**—Establishing a satisfactory winter cover crop from seedings of rye, oats, barley, wheat, or mixtures of these crops, made in the fall of 1945—**$1.50 per acre.**

Specifications: A satisfactory cover will be considered to have been established when the land is uniformly covered with a growth from which a reasonable tonnage of forage could be harvested. The crop must not be harvested for grain or cut for hay. Recommendations of the Maryland Experiment Station and Extension Service should be followed with respect to seedbed preparation, seeding rates per acre, and planting dates. Seed should be sown sufficiently early to permit plants to withstand winter freezes.

6. **Summer legumes alone.**—Establishing a summer cover crop from seedings of soybeans from which seed is not harvested, or cowpeas—**$1.50 per acre.**

Specifications: The land should be uniformly covered with a growth from which a reasonable tonnage of forage could be obtained if harvested. The forage must be turned and followed by a fall sown crop, or left on the land during the following winter.

7. **Sweet clover.**—Disking or plowing under a good stand and good growth of sweet clover—**$1.50 per acre.**

Specifications: A vegetative growth from which a reasonable tonnage of forage could be obtained if harvested must be disked or plowed under. If turned in the fall, the land must be seeded to a fall-sown crop.

PASTURE

8. **Permanent pasture.**—Establishing a permanent pasture—**$6.00 per acre.**

Specifications: Approval by the county committee of the kind and amount of seed and the amount of lime and fertilizer to be used, must be obtained before performing this practice. A satisfactory stand of adapted pasture perennial grasses, perennial legumes or a combination of such grasses and legumes, must be established. Liming and fertilizer materials, where necessary to insure a good stand and good growth, should be applied at or before the time of seeding. The most widely adapted permanent pasture legumes and grasses are listed below. To establish a good stand, the following minimum seeding rates per acre are recommended by the Maryland State Experiment Station and Extension Service:

Kind of seed	Fertile loam, silt loam, satisfactory drainage (pounds)		Moderate to low fertility, satisfactory drainage (pounds)	Poorly drained soil, not too swampy (pounds)
	No. 1 or No. 2		No. 3	No. 4
White clover	1		1	1
Red clover	5	3	5	
Alsike		3		4
Ladino [1]		1		
Annual lespedeza [2]			5	
Kentucky bluegrass	8		4	5
Orchard grass [3]		7	4	
Timothy	8		4	
Red top			3	4
Colonial bent grass				2

[1] Alfalfa may be substituted on fertile soil with less moisture holding capacity at the rate of **five** pounds of alfalfa for **one** pound of Ladino clover.

[2] Annual lespedeza should not be used in areas where it is not adapted because of short growing season.

[3] Bromegrass (Southern strain) may be substituted on fertile soils high in nitrogen and in connection with a vigorously growing legume.

9. **Open ditch drainage.**—Constructing or enlarging drainage ditches—**6 cents per cubic yard of dirt removed,** not to exceed 7 cents per linear foot.

Specifications: Approval by the county committee must be obtained before carrying out this practice. The ditches must be laid out and constructed under the supervision of a qualified person approved by the county committee and, when completed, must meet detailed specifications approved by the State Committee.

The ditches are to be located where they will best serve the purpose of providing adequate drainage. The sides of the ditches should be sloped where practicable. V-shaped ditches are recommended. Payment will not be made with respect to the dirt removed from any ditch unless adequate provision is made for the entrance of the water into and out of the ditch. No credit will be allowed for cleaning out a ditch.

Well constructed and properly maintained ditches provide adequate drainage for cropland and pasture

10. **Tile drainage.**—Installing field drainage tile on farmland—**5 cents per linear foot of tile.**

Specifications: Approval by the county committee must be obtained before carrying out this practice. The drainage ditches must be laid out and constructed under the supervision of a qualified person approved by the county committee and, when completed, must meet detailed specifications approved by the State committee.

This practice is applicable only to farmland suitable to cultivated crops, pasture, or improved meadows.

11. **Terracing.**—Constructing diversion ditch terraces for which proper outlets are provided—**5 cents per cubic yard of dirt removed.**

Specifications: Approval by the county committee must be obtained before carrying out this practice. The terraces must be laid out by or under the supervision of a qualified person approved by the county committee and must be

completed in accordance with detailed specifications approved by the State committee. The terraces must have a minimum cross-sectional area of nine (9) square feet and must empty into an outlet adequately protected against washing. Payment for this practice is limited to diversion ditch terraces only.

12. **Contour stripcropping.**—Establishing on the contour alternate strips of row crops and sown, close-drilled, or sod crops—**$1.00 per acre.**

Specifications: The strips shall be on the contour following properly laid out terraces or guide lines established by or under the supervision of a qualified person approved by the county committee. Payment will be allowed only for the acreage on which the strips are first established in 1946. No credit for this practice will be given where two or more adjacent strips are planted to cultivated row crops the same year.

Farming row crops on the contour with alternate strips of close growing crops prevents erosion and increases yields

13. **Contour row crops.**—Contour farming of cultivated row crops—**$1.00 per acre.**

Specifications: The plowing and cultivation of the crop must be performed on the contour following properly laid out terraces or guide lines established on the contour by or under the supervision of a qualified person approved by the county committee.

Any acreage of row crops planted or cultivated on the contour or in connection with stripcropping established prior to the 1946 program year will qualify for payment under this practice, provided the strips are properly maintained and no two or more adjacent strips are planted to cultivated row crops the same year. Any acreage of row crops farmed on the contour in connection with contour stripcropping established during the program year will not qualify for payment under this practice.

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North Carolina Handbook of Conservation Practices 1946

UNITED STATES DEPARTMENT OF AGRICULTURE
PRODUCTION AND MARKETING ADMINISTRATION
FIELD SERVICE BRANCH

Washington, D. C.

Issued October 8, 1945

FOREWORD

Wartime demands placed a heavy strain upon the Nation's farmland. North Carolina farmers put their "hands to the plow" and went all-out to produce their share of the crops and livestock products needed to win the war. In this magnificent effort, they willingly subjected their land to undue erosion hazards and excessive soil depletion by growing record acreages of row crops.

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The 1946 Agricultural Conservation Program for North Carolina is aimed at assisting farmers in carrying out a sufficient volume of those practices which will rebuild and conserve the State's most valuable resource—its native soil.

The practices included in the 1946 program are based upon combined recommendations of community, county, and State committeemen of the Field Service Branch; representatives of other agricultural agencies; and other farm leaders.

NORTH CAROLINA HANDBOOK OF CONSERVATION PRACTICES—1946

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Each farmer should confer with his county or community committeeman to plan how the Program can be of greatest assistance in obtaining the maximum conservation on his farm.

CONSERVATION MATERIALS AND SERVICES

Liming materials, superphosphate, and other designated conservation materials and services may be furnished by the Field Service Branch, Production and Marketing Administration, in lieu of cash payments. The Government will pay part of the cost of the material or service and the farmer will pay part.

PRACTICES AND PAYMENTS

[Payments under this program are subject to the appropriation hereafter provided for this purpose by the Congress]

Assistance under the Program will be available to the extent approved by the county committee for carrying out practices listed herein on any farm during the 1946 program year.

To qualify for payment, each practice must be performed in accordance with approved specifications for the practice and must be in keeping with good farming methods for the locality. The county committee will require evidence (bills, receipts, seed tags, etc.) to be submitted by the farmer in support of reports of practices carried out with materials or seeds, excluding conservation materials furnished by the Field Service Branch, Production and Marketing Administration.

APPLICATION OF MATERIALS

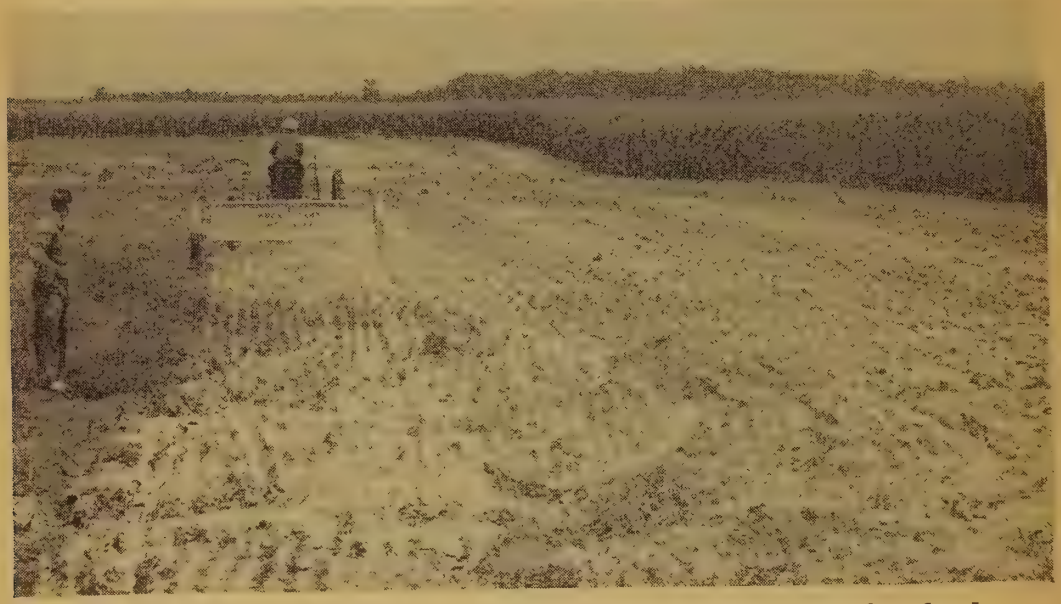
1. **Liming materials.**—Applying standard ground limestone, or equivalent material, to farmland.

Credit rate: Not more than 80 percent of average cost delivered to farms in the county.

Specifications: Standard ground limestone shall contain calcium and magnesium carbonates equivalent to not less than 85 percent calcium carbonate and must be fine enough so that not less than 90 percent will pass through a 10-mesh sieve. Ground limestone suitable for agricultural use but not meeting the above specifications will be considered as limestone screenings.

For the purpose of this practice the following will be considered to be equivalent to **one ton** of standard ground limestone:

1,400 pounds of burned or hydrated lime.
2,000 pounds of burned oyster shells meeting the chemical specifications for standard ground limestone.
2,000 pounds of agricultural marl meeting the chemical specifications for standard ground limestone and in good mechanical condition for spreading.
3,000 pounds of ground limestone screenings.
3,000 pounds of ground oyster shells containing all the finer particles obtained in the grinding process.
3,000 pounds of agricultural marl having a calcium carbonate equivalent of not less than 57 percent and in good mechanical condition for spreading.



This farmer has learned the value of applying lime to his farmland.

The application of liming materials contained in commercial fertilizers will not qualify for payment under this practice.

Liming materials should not be applied to land on which lime has been applied during the past five years unless a recent soil analysis indicates a need for additional materials.

2. **Phosphate.**—Applying phosphate materials to eligible crops.

Credit rate: 4 cents per pound of available P_2O_5. This rate is equivalent to 80 cents per 100 pounds of 20 percent superphosphate. For purposes of payment, 200 pounds of basic slag will be considered equivalent to 100 pounds of 20 percent superphoshate.

Specifications: Phosphate materials may be applied only to:

a. Permanent pasture;

b. The following legumes and grasses seeded alone in the fall of 1945 or during the 1946 program year: perennial or biennial legumes, perennial grasses, annual lespedeza, or crotalaria;

c. The same crops included under (*b*) above seeded *with a small grain nurse crop* in the fall of 1945 or in the spring of 1946, if applied after the small grain crop is harvested, or if not harvested, after June 30, 1946; or

d. Winter legumes or ryegrass seeded after June 30, 1946, with or without a nurse crop.

3. **Potash.**—Applying potash materials to eligible crops.

Credit rate: 3½ cents per pound of available K_2O. This rate is equivalent to $2.10 per 100 pounds of 60 percent muriate of potash.

Specifications: Potash must be applied in accordance with the specifications for phosphate materials under practice 2.

4. **Boron.**—Applying borax to alfalfa or vegetable land.

Credit rate: 4 cents per pound of agricultural granulated borax.

Specifications: Ten to thirty-five pounds per acre of agricultural granulated borax must be applied uniformly to alfalfa. The rate of applications of borax to commercial vegetable land must conform with recommendations of the North Carolina Experiment Station for the specific area.

COVER CROPS

5. **Winter cover crops.**—Establishing a winter cover crop in the fall of 1946 from seedings of crimson clover, vetch, Austrian winter

Winter cover crops protect the land from erosion and increase fertility when turned as green manure.

peas, annual ryegrass, a mixture consisting solely of these crops, or a full seeding of one or more of these legumes with a small grain nurse crop.

Credit rate: Payment will be made on the pounds of seed (cleaned seed equivalent) used at the following rates:

a. Crimson clover.—**15 cents per pound.**
b. Hairy vetch.—**12 cents per pound.**
c. Austrian winter peas.—**5 cents per pound.**
d. Annual ryegrass.—**8 cents per pound.**

Specifications: The seeding must be performed in accordance with good farming practice. This shall include a well-prepared seedbed; a full seeding of adapted seed; and the application of liming material, phosphate, and potash where necessary to assure a good stand. All legume seed must be inoculated. Payment will be made for ryegrass on cropland only. No credit will be allowed under this

practice for any acreage on which the county committee determines that a good stand and good growth was not obtained for turning. The seeding rates per acre and dates of seeding recommended by the North Carolina Experiment Station and Extension Service are as follows:

Cover crop	Seeding rates per acre	Planting dates		
		Mountains	Piedmont	Coastal Plain
	Pounds			
Crimson clover	20–25	July 10–Oct. 1	Sept. 1–Oct. 15	Sept. 1–Nov. 1.
Vetch	20–25	July 10–Oct. 1	Sept. 1–Oct. 15	Sept. 1–Nov. 1.
Austrian winter peas. drilled	25–35	July 10–Oct. 1	Sept. 1–Oct. 15	Sept. 1–Nov. 1.
Austrian winter peas. broadcast	40–50			
Annual ryegrass	20–40	July 10–Oct. 1	Sept. 1–Oct. 15	Sept. 1–Nov. 1.

For complete recommendations, see Extension Service War Series Bulletin No. 24, "Austrian Winter Peas, Crimson Clover, Vetch," and No. 22, "Italian Ryegrass."

6. **Small grains.**—Establishing a satisfactory winter cover from seedings of wheat, oats, barley, rye, or mixtures of these crops, made in the fall of 1945.—**$1.50 per acre.**

Specifications: A satisfactory cover will be considered to have been established when the land is uniformly covered with a growth from which a reasonable tonnage of forage could be harvested. The crop must not be harvested for grain or cut for hay. The following recommendations of the North Carolina Experiment Station and Extension Service should be followed with respect to seeding rates per acre and planting dates:

Cover crop	Seeding rates per acre (bushels)		Planting dates		
	Drilled	Broadcast	Mountains	Piedmont	Coastal Plain
Barley	2	3	Aug. 20–31	Aug. 20–31	Sept. 1–15.
Oats	3	4	Aug. 20–31	Aug. 20–31	Sept. 1–15.
Rye	1½	2	Aug. 20–31	Aug. 20–31	Sept. 1–15.
Wheat	1½	2	Sept. 25–Oct. 10	Oct. 10–31	Nov. 1–15.
Oats and wheat	2 oats, 1 wheat	3 oats, 1½ wheat	Sept. 25–Oct. 10	Oct. 10–31	Nov. 1–15.

7. **Summer legumes alone.**—Establishing a summer cover crop from seedings of soybeans from which seed is not harvested, cowpeas, velvetbeans, crotalaria, or mixture of these legumes.—**$1.00 per acre.**

Specifications: The land should be uniformly covered with a growth from which a reasonable tonnage of forage could be obtained if harvested. The forage must be turned and followed by a fall-sown crop or left on the land during the following winter.

8. **Annual lespedesa.**—Establishing a good stand and a good growth of annual lespedeza.—**$1.00 per acre.**

Specifications: A satisfactory growth of annual lespedeza seeded in the spring of 1946 must be turned and followed by a fall-sown crop or left on the land during the winter. The crop may be grazed provided it is done in such manner as to assure natural reseeding the following year. Harvesting of seed is permitted. Payment will not be allowed if the lespedeza is cut for hay.

9. **Sweetclover.**—Disking or plowing under a satisfactory growth of sweetclover.—**$1.50 per acre.**

Specifications: A vegetative growth from which a reasonable tonnage of forage could be obtained if harvested must be disked or plowed under. Sweetclover disked or plowed under in the fall must be followed by a fall-sown crop.

PASTURE

10. **Permanent pasture.**—Establishing a permanent pasture by seeding adapted pasture grasses and legumes. Payment rates under this practice are based on clean seed equivalent:

	Per pound		*Per pound*
a. Dallis (imported)	$0.65	*g.* Kobe or common lespedeza	$0.14
b. Dallis (domestic)	.50	*h.* White clover	.60
c. Kentucky bluegrass	.40	*i.* Ladino clover	1.50
d. Orchard grass	.35	*j.* Low hop clover	.60
e. Redtop	.20	*k.* Alsike clover	.35
f. Korean lespedeza	.08	*l.* Sweetclover	.15

Specifications: A mixture containing at least one perennial grass and one or more adapted permanent pasture legumes must be properly sown on a well-pre-

Good pastures go hand in hand with successful livestock production.

pared seedbed. The seedbed should be stirred by plowing or double disking (or its equivalent) and should be firm before the seeds are sown. Liming and fertilizer materials, where necessary to insure a good stand and growth, should be applied at or before the time of seeding. The permanent pasture mixtures and seeding rates per acre recommended by the North Carolina Experiment Station and Extension Service are as follows:

COASTAL PLAIN COUNTIES:

(1) 10 to 20 pounds of Dallis grass with 15 pounds of Kobe or common lespedeza;

—or—

(2) 10 to 20 pounds of Dallis grass with 5 pounds of low hop clover;

—or—

(3) Bermuda root stocks (credit allowed under practice 13) with 15 pounds of Kobe or common lespedeza, or 5 pounds of low hop clover;

(4) 5 pounds of orchard grass with 10 pounds of Dallis grass, 12 pounds of Kobe or common lespedeza, and 1 to 2 pounds of white clover (for fertile, moist soils only).

PIEDMONT AND MOUNTAIN COUNTIES:

(1) 8 pounds of orchard grass with 4 pounds of redtop; 4 pounds of Kentucky bluegrass; 15 pounds of Korean, Kobe, or common lespedeza; and 1 to 2 pounds of white clover (medium to good soils);

—or—

(2) 6 pounds of orchard grass with 6 pounds of redtop; and 15 pounds of Korean, Kobe, or common lespedeza (poor to medium soils); **5 pounds of Dallis grass should be seeded in the early spring to either of the above two mixtures in the Piedmont. It will winter-kill if fall-seeded.**

(3) Bermuda root stocks (credit allowed under practice 13) with 15 pounds of Korean, Kobe, or common lespedeza or 5 pounds of low hop clover.

NOTE: Kobe lespedeza and Bermuda grass are not recommended for mountain counties.

The above mixtures are adapted to land that will normally produce as much as 15 bushels of corn per acre. On land less productive, grass seedings should be made only after two successful years of lespedeza in the Coastal Plain and lespedeza and/or sweetclover in the Piedmont and mountains. Grass would then be drilled in the legume in such a manner that reseeding of the legume is assured.

11. **Pasture improvement.**—Reseeding pasture with perennial grasses, perennial legumes or mixtures containing perennial grasses or perennial legumes. Payment will be made on the pounds of seed used at the rates shown under practice 10.

Specifications: Prior approval by the county committee as to the kind and amount of seed and the amount of fertilizer and liming materials to be used is required.

(1) **Carpet grass.**—Land must be disked and seeded to low hop clover and/or white clover in the fall or disked during the winter and seeded to lespedeza and Dallis grass in February. The disking should destroy temporarily the stand of carpet grass and provide a good seedbed for seeding the legumes. Sufficient phosphate, potash, and liming materials are to be applied, where necessary, to assure a good stand.

(2) **Run down or unproductive permanent pastures.**—This will include pastures containing a low percentage of desirable plants such as Bermuda grass pastures from which the legumes have disappeared, or bluegrass pastures having very weak stands of desirable grasses and legumes. Land should be disked on the contour with the blades set at a slight angle, or scarified with a drag harrow, to enable the establishment of seedlings. The preparation should destroy as few of the desirable plants as possible. Sufficient phosphate, potash, and liming materials should be applied, where necessary, to assure a good sod. Seedings will depend upon the plants present but should consist in most cases only of legumes, thus increasing the spread of the grass that is already present. The seedings would be patterned after those listed in practice 10.

12. **Farm ponds.**—Excavating ponds or constructing water-impounding dams for providing adequate supplies of water for livestock.—**12 cents per cubic yard, not to exceed 3,000 cubic yards per farm.**

Specifications: The farm pond must be laid out under the supervision of a technically trained or qualified person approved by the county committee and must be completed in accordance with the specifications as set forth in Farmers Bulletin No. 1938. The practice is applicable only on farms where a farm family is living. This practice shall not be approved on permanently running streams.

13. **Bermuda grass.**—Establishing a satisfactory stand of Bermuda grass by use of sprigs or sod.—**$4.00 per acre.**

Specifications: Bermuda grass sprigs or sod should be planted not more than 3½ feet apart each way and properly fertilized. A legume, if not already established, should be seeded in accordance with practice 10 during the year in which the Bermuda grass is set. Fertilizer required to insure a good growth should

be applied. A permanent sod will not be considered as established unless two-thirds of the sprigs or sod pieces show healthy growth.

14. **Kudzu.**—Establishing a stand of kudzu by use of crowns or seedlings.—**$6.00 per acre.**

Specifications: A satisfactory stand will be considered to have been established when the crowns or seedlings show a strong, healthy growth and the number surviving can be expected to uniformly cover the area within a reasonable length of time. Strong, healthy crowns or seedlings should be planted 3½ feet apart in rows not more than 25 feet apart. This spacing requires approximately 500 plants per acre. Planting should begin about February and be completed before active growth begins. There should be a survival of at least 350 plants per acre. Where kudzu is planted along gullies, plants should be set 3½ feet apart on well prepared, firm soil about 6 feet from the bank of the gully. In determining the acreage of kudzu where it is planted only in rows along gullies or on terrace ridges, each row will be considered to occupy a strip 25 feet wide. In all cases the kudzu plants should be properly fertilized and cultivated the first year.

Farming row crops on the contour with alternate strips of close growing crops prevents erosion and increases yields

EROSION CONTROL

15. **Sod waterways.**—Establishing permanent sod waterways.—**60 cents per 1,000 square feet.**

Specifications: Waterways shall, where possible, be located in existing natural draws or depressions, shall extend to level ground or adequate outlets, and shall have sufficient width to carry maximum run-off from the area drained and to facilitate mowing. Adequate vegetative growth must be established as follows:

(*a*) On badly gullied waterways, or if it has excessive fall, only kudzu or Bermuda grass will be approved. If kudzu is used, there must be a survival of not less than 750 plants per acre. If Bermuda grass is used, there must be not less than one sod piece or sprig to each 2 square feet of land.

(*b*) On gentle unbroken slopes, lespedeza sericea may be used with a seeding of not less than 40 pounds of scarified seed per acre, seeded not later than

June 1. A mixture of adapted perennial legumes and perennial grasses may be seeded, provided the seedbed is well prepared and sufficient quantity of adapted seed is used to obtain a good stand and a satisfactory cover. The application of 500 pounds of complete fertilizer and 8 tons of stable manure per acre is recommended. A satisfactory cover must be obtained and will be considered satisfactory when the land is uniformly covered with a growth from which a reasonable tonnage of forage could be harvested.

The vegetative cover established under this practice will not qualify for payment in connection with any other practice.

16. **Terracing.**—Constructing standard terrace for which proper outlets are provided.—**90 cents per 100 linear feet.**

Specifications: The producer must agree to maintain terraces constructed and practice contour tillage. The terraces must be laid out under the supervision of a technically trained or qualified person approved by the county committee and must be completed in accordance with specifications approved by the State committee. Only broad base channel-type terraces which meet detailed specifications recommended by Soil Conservation Service and Extension Service and approved by the State committee will qualify for payment. Terraces must have a minimum cross-sectional area of channel of 7 square feet.

17. **Contour stripcropping.**—Contour farming of row crops and sown, close-drilled, or sod crops in alternate strips.—**$1.00 per acre.**

Specifications: The strips shall be on the contour following properly laid-out terraces or guide lines established by or under the supervision of a qualified person approved by the county committee. The width of strips must meet detailed specifications approved by the State committee.

18. **Contouring row crops.**—Contour farming of row crops.—**$1.00 per acre.**

Specifications: The cultural operations incident to preparing the land and growing the crop must be performed on the contour following properly laid-out terraces or guide lines established on the contour by, or under the supervision of, a qualified person approved by the county committee.

19. **Contouring drilled crops.**—Contour farming of drilled or close sown crops.—**50 cents per acre.**

Specifications: Same as for contouring row crops under practice 18.

20. **Sericea.**—Establishing a satisfactory stand of lespedeza sericea for the prevention of water erosion.—**$5.00 per acre.**

Specifications: This practice is limited to steep slopes where planting is intended primarily to control erosion. A sufficiently well distributed stand must be obtained to assure complete coverage of the area the following year. A seeding rate of 25 pounds of searified seed per acre is recommended. Liming and fertilizer material should be applied where necessary to assure a good stand and good growth. A protective vegetative cover must be established.

21. **Open ditch drainage.**—Constructing or enlarging drainage ditches (including lateral and lead ditches) for which proper outlets are provided.—**8 cents per cubic yard of dirt removed, not to exceed 8 cents per linear foot.**

Specifications: The ditches must be laid out under the supervision of a technically trained or qualified person approved by the county committee and must be completed in accordance with specifications approved by the State committee. Payment will not be made with respect to the soil removed from any ditch unless adequate provision is made for the entrance of water at not more than 25 foot intervals through the spoil banks into the ditch. Preferably the spoil banks should be spread. Every ditch shall be provided with an adequate outlet. No payment will be made for cleaning out existing ditches.

22. **Tile drainage.**—Installation of field drain tile on farmland:

a. 4-inch tile.—**5 cents per linear foot of tile.**
b. 6-inch tile.—**8½ cents per linear foot of tile.**
c. 8-inch tile.—**15 cents per linear foot of tile.**

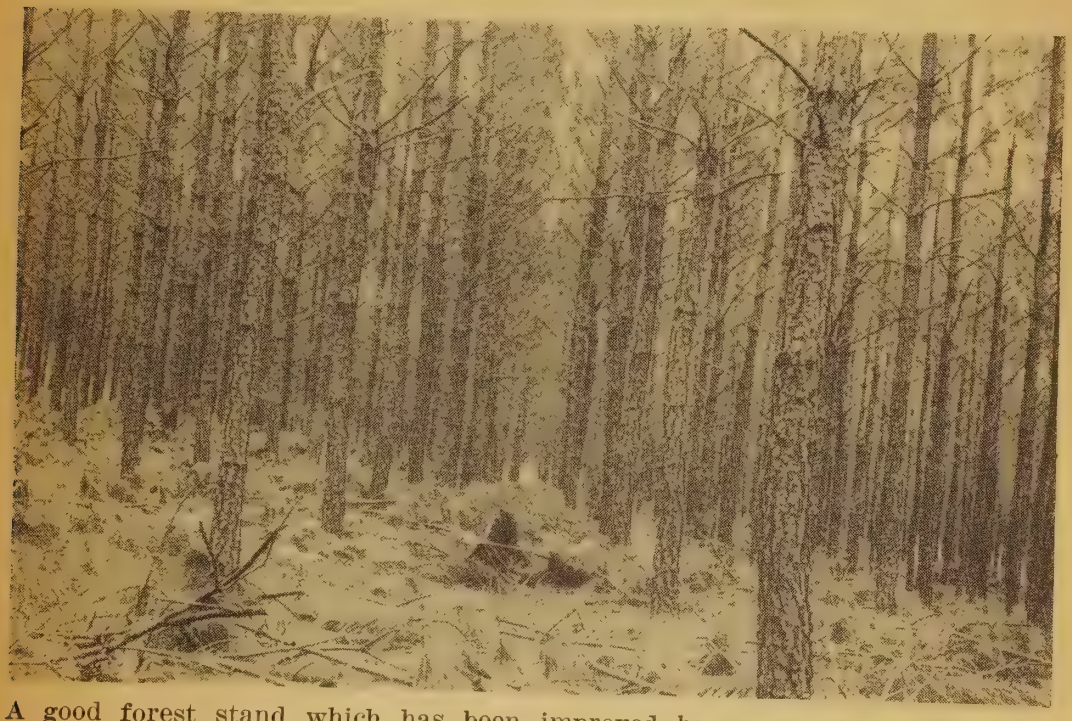
Specifications: The drainage system must be laid out under the supervision of a technically trained or qualified person approved by the county committee and must be completed in accordance with specifications approved by the State committee. The practice is applicable only to farmland with **soil types that respond well** to tile drainage and are suitable for cultivated crops, pasture, or improved meadows.

FORESTRY

23. **Forest fire protection.**—Constructing firebreaks—

a. 7 feet in width.—**$2.00 per 1,000 linear feet.**
b. 15 feet in width.—**$5.00 per 1,000 linear feet.**

Specifications: Firebreaks are to be constructed by plowing fire lanes or otherwise clearing to the specified width all inflammable material to mineral soil.



A good forest stand which has been improved by proper thinning of less desirable trees.

No payment is to be made if any part of the area burns during the year 1946 due to fire originating on the owner's property. The firebreaks must be laid out under the supervision of a qualified person approved by the county committee.

24. **Forest planting.**—Planting approved species of forest trees.—**$4.50 per acre.**

Specifications: The species of trees planted must be those recommended by the public forestry agencies for the soil and location, selected from the following species: longleaf pine, loblolly pine, shortleaf pine, slash pine, white pine, red cedar, yellow poplar, black locust, white ash, cypress, Norway spruce, or red spruce. The trees must be planted with an average space of 6 x 7 feet, requiring 1,000 trees per acre, and must show the survival of at least 700 trees per acre at the end of the first growing season. This practice applies only to trees planted in the fall of 1945 or the spring of 1946. No payment will be made under this practice if any part of the area burns during the year 1946 due to fire originating on the owner's property. The trees must be planted under the supervision of a qualified person approved by the county committee.

25. **Improving stands.**—Thinning stands of trees, removing undesirable trees, or pruning according to specifications.—**$3.00 per acre.**

Specifications: The forest stand improvement must be carried out under the supervision of a qualified person approved by the county committee. No payment will be made under this practice if any part of the area burns during the year 1946 due to fire originating on the owner's property. This practice is applicable to young stands of timber less than 10 inches in diameter breast high which are in a crowded condition and show need for thinning or other cultural operations as indicated in Items a, b, or c, below:

a. **Hardwoods or mixed stands of hardwoods and pine.**—The removal of dead, diseased, limby (wolf trees), crooked, or hollow-butted trees, and poor species interfering with the growth of choice trees. After the improvement cutting, such woodland should have not less than 150 good, straight, clear, and disease-free trees at least 6 inches in diameter breast high or not less than 300 similar trees at least 3 inches in diameter.

b. **Pine stands.**—The thinning of stands of trees that are becoming stunted from overcrowding, leaving at least 150 good, straight, clear, disease-free trees 6 inches or more in diameter, or 300 similar trees not less than 3 inches in diameter.

c. **Pruning forest trees—**

(1) In open-grown stands of pine where trees are inclined to be limby. For the close pruning of the trunk to a height of at least 17 feet of at least 100 potential timber trees of 5 to 7 inches in diameter, per acre, or at least 150 similar trees 4 to 5 inches in diameter to a minimum height of 13 feet. (In no case should trees be pruned to more than two-thirds of their total height.)

(2) In stands of planted pines which have reached a diameter of not less than 4 to 5 inches. For close pruning the trunk of all trees to a height of at least 13 feet, but not to exceed two-thirds of the total height.

SEED HARVESTING

26. **Harvesting seed.**—Harvesting seed from a good stand of annual ryegrass, crimson clover, red clover, alsike clover, alfalfa, sweet clover, sericea, crotalaria, or hairy vetch, or a mixture of hairy vetch and small grain consisting of at least 25 percent by weight of hairy vetch seed harvested.—**$3.50 per acre,** not to exceed ten acres per farm.

Specifications: Seed must be harvested after reaching maturity and before appreciable loss has resulted from weather or storm damage. A yield which is reasonable for the community must be obtained.

U. S. GOVERNMENT PRINTING OFFICE: 1945

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Tennessee Handbook of Conservation Practices 1946

UNITED STATES DEPARTMENT OF AGRICULTURE
PRODUCTION AND MARKETING ADMINISTRATION
FIELD SERVICE BRANCH

Washington, D. C. Issued October 1945

FOREWORD

Wartime demands have placed a heavy strain upon the Nation's farmland. Tennessee farmers put their "hands to the plow" and went all-out to produce their share of the crop and livestock products needed to win the war. In this magnificent effort, they willingly subjected their land to undue erosion hazards and excessive soil depletion by growing record acreages of row crops.

Now that the war is over, farmers once again can turn their efforts to restoring the fertility of their soil. Fertile land is essential to production of adequate supplies of agricultural products necessary to keep us a strong and healthy people.

The 1946 Agricultural Conservation Program for Tennessee is aimed at assisting farmers in carrying out a sufficient volume of those practices which will rebuild and conserve the State's most valuable resource—its native soil.

The practices included in the 1946 program are based upon combined recommendations of community, county, and State committeemen of the Field Service Branch; representatives of other agricultural agencies; and other farm leaders.

TENNESSEE HANDBOOK OF CONSERVATION PRACTICES—1946

The 1946 Agricultural Conservation Program offers assistance to Tennessee farmers to restore and conserve the fertility of the soil through the use of conservation practices. The program year begins January 1, 1946, and ends December 31, 1946.

In order to encourage the performance of practices which are needed most, the county committee may select from the list of approved practices those which will be applicable to farms in the county.

Each farmer should confer with his county or community committeeman to plan how the program can be of greatest assistance in obtaining the maximum conservation on his farm.

CONSERVATION MATERIALS AND SERVICES

Liming materials, superphosphate, and other designated conservation materials and services may be furnished by the Field Service Branch, Production and Marketing Administration, in lieu of cash payments. The Government will pay part of the cost of the material or service and the farmer will pay part.

PRACTICES AND PAYMENTS

Assistance under the program will be available to the extent approved by the county committee for carrying out practices listed herein on any farm during the 1946 program year. Payments under this program are subject to the appropriation hereafter provided for this purpose by the Congress.

To qualify for payment, each practice must be performed in accordance with approved specifications for the practice and must be in keeping with good farming methods for the locality. The county committee will require evidence (bills, receipts, seed tags, etc.) to be submitted by the farmer in support of reports of practices carried out with materials or seeds, excluding conservation mateials furnished by the Field Service Branch, Production and Marketing Administration.

APPLICATION OF MATERIALS

1. **Liming materials.**—Applying standard ground limestone, or equivalent material, to farmland:

Credit rate: Not more than 80 percent of average cost delivered to farms in the county.

Specifications: To qualify for payment, standard ground limestone shall contain calcium and magnesium carbonates equivalent to not less than 85 percent calcium carbonate and must be fine enough so that not less than 85 percent shall pass through a 10-mesh sieve. Ground limestone not meeting the above specifications will be considered as limestone screenings.

For the purpose of this practice each of the following will be considered to be equivalent to **one ton** of standard ground limestone:

1,400 pounds of burned or hydrated lime.

2,000 pounds of calcium silicate slag furnished by TVA containing total calcium and magnesium carbonates equivalent to not less than 70 percent calcium carbonate and must be fine enough so that not less than 80 percent shall pass through a 10-mesh sieve.

3,000 pounds of ground limestone screenings.

The application of liming materials contained in commerical fertilizers will not qualify for payment under this practice.

This Tennessee farmland is being improved through application of liming material.

Liming materials should not be applied to land on which one or more tons per acre has been applied during the past three years unless a recent soil analysis indicates a need for additional materials.

2. Phosphate.—Applying phosphate materials to eligible crops.

Credit rate: 4¾ cents per pound of available P_2O_5. This rate is equivalent to $0.95 per 100 pounds of 20 percent superphosphate.

Specifications: Phosphate material (excluding rock phosphate) may be applied **only** to:

(a) Permanent pasture:
(b) The following legumes and grasses seed **alone** in the fall of 1945 or during the 1946 program year; perennial or biennial legumes, perennial grasses, annual lespedeza, or annual sweet clover;
(c) The same crops included under (b) above seeded **with a small grain nurse crop** in the fall of 1945 or in the spring of 1946, if applied after the small grain crop is harvested, or, if not harvested, after June 30, 1946, or
(d) Winter legumes or ryegrass seeded after June 30, 1946, with or without a nurse crop.

3. **Potash.**—Applying potash materials to eligible crops.

Credit rate: 4 cents per pound of available K_2O. This rate is equivalent to $2.00 per 100 pounds of 50 percent muriate of potash.

Specifications: Potash must be applied in accordance with the specifications for phosphate materials under practice 2.

4. **Boron.**—Applying borax to alfalfa—**4 cents per pound.**

Specifications: From 20 to 40 pounds per acre of borax should be applied uniformly to, or in connection with the seeding of, alfalfa.

COVER CROPS

5. **Winter cover crops.**—Establishing a winter cover crop in the fall of 1946 from seedings of crimson clover, vetch, Austrian winter peas, bur clover, button clover, or annual ryegrass, or a mixture consisting solely of these crops, or a full seeding of one or more of these crops with a small grain nurse crop.

Winter cover crops protect the land from erosion and increase fertility when turned as green manure

Credit rate: $2.00 per acre for the acreage established with seed *not* furnished by the Field Service Branch. The credit rate for use of seed furnished by the Field Service Branch will be the same as the deduction rate.

Specifications: The land must be uniformly covered with a vegetative growth. A well-prepared seedbed; a full seeding of adapted seed; inoculation for legume crops unless a recent crop of the same legume or another requiring the same inoculant has been grown on the land seeded; and the application of liming material, phosphate and potash, where necessary to insure a good stand and good growth, are recommended.

Credit will be allowed for a full seeding of one or more of these crops with a small grain nurse crop. Ryegrass is limited to cropland and orchards. No credit will be allowed under this practice for any acreage on which the county committee determines that a good stand and good growth was not obtained. The seeding rates per acre recommended by the Tennessee Extension Service are as follows:

Crimson clover	20 lbs.	Ryegrass	30 lbs.
Vetch	30 lbs.	Austrian winter peas	45 lbs.
Bur clover	30 lbs.	Button clover	20 lbs.

6. **Small grains.**—Establishing a satisfactory winter cover from seedings of rye, oats, barley, or small grain mixtures, made in the fall of 1945—**$1.50 per acre.**

Specifications: A satisfactory cover will be considered to have been established when the land is uniformly covered with a growth from which a reasonable tonnage of forage could be harvested. The crop must not be harvested for grain or cut for hay. No credit will be allowed under this practice for any acreage qualifying under the winter cover crop practice in the fall of 1945.

PASTURE PRACTICES

7. **Pasture development.**—Establishing a pasture—**$7.00 per acre,** acreage not to exceed 10 percent of the cropland on the farm or 5 acres, whichever is larger.

Good pastures go hand in hand with successful livestock production

Specifications: A pasture development and management plan indicating the acreage to be established, preparation of the land, kind and quantity of seeds to be used, fertilizer and liming materials to be applied, etc., must be worked out with and approved by the county committee before performing this practice. The pasture management plan shall include also an agreement on the part of the farm operator that any acreage established for credit under this practice will remain in pasture for a period longer than five years. To qualify for payment, a satisfactory stand of adapted perennial grasses, perennial legumes, or a combination of such grasses and legumes must be established. A mixture of permanent grasses and legumes recommended by the Extension Service Agronomist, should be seeded before October 10, 1946. The acreage of pasture established and reported for credit under this practice will be inspected by a representatvie of the county committee before payment is approved therefor.

8. **Kudzu.**—Establishing a satisfactory stand of kudzu—**$6.00 per acre.**

Specifications: A satisfactory stand will be considered to have been established when the crowns or seedlings show a strong, healthy growth and the number surviving can be expected to uniformly cover the area within a reasonable length of time. Strong, healthy crowns or seedlings should be planted 3½ feet apart in rows not more than 25 feet apart. This spacing requires approximately 500 plants per acre. Planting should begin from first to 30th of April depending upon the frost date and be completed before active growth begins. There should be a survival of at least 350 plants per acre. Where kudzu is planted along gullies, plants should be set 3½ feet apart on well-prepared, firm soil about 6 feet from the bank of the gully. In determining the acreage of kudzu where it is planted only in rows along gullies or on terrace ridges, each row will be considered to occupy a strip 25 feet wide. In all cases the kudzu plants should be properly fertilized.

9. **Bermuda.**—Establishing a satisfactory stand of Bermuda grass by use of sprigs or sod—**$6.00 per acre.**

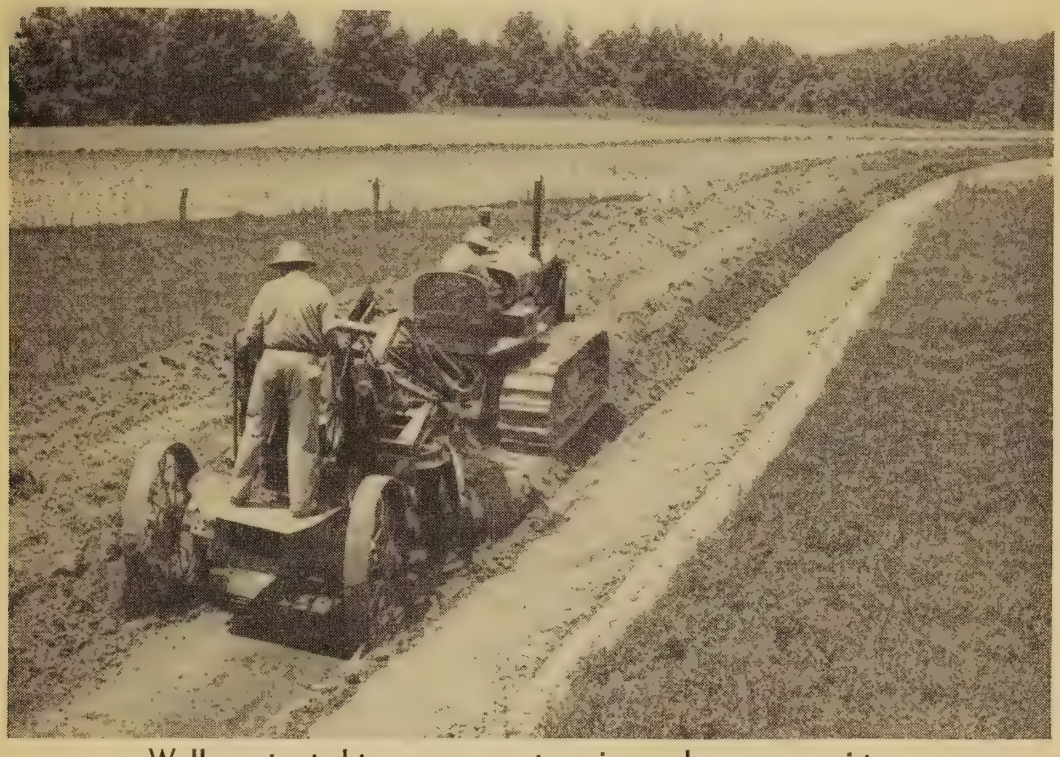
Specifications: Sprigs of Bermuda grass should be planted not more than three feet apart each way and fertilized properly. A sod will not be considered to be established unless at least two-thirds of the plants show healthy growth.

10. **Stockwater development.**—Excavating ponds or constructing water impounding dams for providing adequate supplies of water for livestock—**12 cents per cubic yard** of dirt moved, not to exceed 2,500 cubic yards per farm.

Specifications: The work must be done under the general supervision of a qualified person recommended by the county committee and approved by the State committee and must be completed in accordance with detailed specifications approved by the State committee. Adequate spillways must be provided and the watershed area draining into such pond or dam must be protected from erosion as recommended by the person giving technical assistance. This practice will not be approved on permanently running streams.

EROSION CONTROL

11. **Terracing.**—Constructing standard terraces for which proper outlets are provided—**$1.00 per 100 linear feet.**



Well constructed terraces prevent erosion and conserve moisture.

Specifications: The terraces must be laid out by a person approved by the county committee and constructed in accordance with detailed specifications recommended by the Engineering Department of the Extension Service and approved by the State Committee. Proper outlets must be provided and protected. A minimum water-carrying capacity of eight square feet cross-sectional area is required for settled terraces.

12. **Sericea.**—Establishing a satisfactory stand of lespedeza sericea for the prevention of water erosion—**$6.00 per acre.**

Specifications: This practice is intended primarily to control erosion and is limited to fields subject to serious soil erosion and which should be in permanent vegetation. A sufficiently well-distributed stand must be obtained to assure complete coverage of the area the following year. Liming and fertilizer material should be applied where necessary to assure a good stand and growth. A protective vegetative cover must be established.

13. **Sod waterways.**—Establishing permanent sod waterways—**50 cents per 1,000 square feet.**

Specifications: Waterways shall, where possible, be located in existing natural draws or depressions, shall extend to level ground or adequate outlets, and shall have sufficient width to carry maximum run-off from the areas drained and to facilitate mowing. Adequate vegetative growth must be established as follows:

(a) On badly gullied waterways, or if it has excessive fall, only kudzu or Bermuda grass will be approved. If kudzu is used, there must be a survival of not less than 750 plants per acre. If Bermuda grass is used, there must be not less than one sod piece or sprig to each 2 square feet of land.

(b) On gentle unbroken slopes, lespedeza sericea may be used. Not less than 40 pounds of scarified seed per acre must be seeded between March 15 and July 1.

A satisfactory cover must be obtained. A satisfactory cover will be deemed to have been established when the land is uniformly covered with a good growth. One hundred to three hundred pounds per acre of nitrate of soda (or its equivalent) is recommended.

The vegetative cover established under this practice will not qualify for payment in connection with any other practice.

14. **Contouring row crops.**—Contour farming of row crops—**50 cents per acre.**

Specifications: Payment for this practice will be limited to the acreage on which plantings are made in conformity with contour lines established by or under the supervision of a qualified person recommended by the county committee and approved by the State committee.

OTHER PRACTICES

15. **Open ditch drainage.**—Constructing or enlarging drainage ditches (including lateral and lead ditches) for which proper outlets are provided—**8 cents per cubic yard** of dirt moved, not to exceed 8 cents per linear foot.

Specifications: The ditches must be laid out under the general supervision of a qualified person approved by the State committee and must be completed in accordance with detailed specifications approved by the State committee. Payment will not be made with respect to the dirt removed from any ditch unless adequate provision is made for the entrance of water into and out of the ditch.

16. **Subsoiling.**—Subsoiling in shale area—**$2.00 per acre.**

Specifications: Furrows must be not more than three feet apart and must reach a minimum depth of 15 inches.

17. **Forest tree planting.**—Planting approved species of forest trees—**$7.50 per acre.**

Specifications: The following trees will qualify for payment when planted in accordance with the provisions of the paragraph immediately below:

Yellow poplar	Loblolly pine	Virginia pine	Black walnut
Black locust	Shortleaf pine	White pine	Catalpa

Maximum spacing for black walnut should be eight by eight feet; maximum spacings for all other species should be six and one-half by six and one-half feet. To qualify for payment, the trees must be protected from fire and grazing. The trees should be cultivated sufficiently to prevent them from being suppressed by native growth of weeds and undesirable species of shrubs and trees. Plantings of black walnut seedlings must show a survival in the fall of 1946 of not less than 400 trees per acre evenly distributed over the land and for all other species not less than 700 trees per acre. In the case of white pine plantings, credit will not be allowed unless all currant and gooseberry bushes present are removed from the planted area and throughout a surrounding border zone 900 feet wide to protect the white pine from blister rust damage.

18. **Harvesting seeds.**—The total payment for the farm for harvesting seeds under a and b below shall not exceed $35.00.

a. Harvesting seed from a good stand of white clover, annual ryegrass, hairy vetch, alsike clover, red clover, or alfalfa sown alone or with a small grain support crop—**$3.50 per acre.**

Specifications: The harvesting must be done in a workmanlike manner and a yield obtained which is reasonable for the community.

b. Harvesting seed from a good stand of crimson clover grown alone or in connection with a small grain nurse crop—**1 cent per pound,** not to exceed $3.50 per acre.

Specifications: To qualify for payment the seed must be cleaned. Payment will be based on the pounds of clean seed harvested.

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Virginia Handbook of Conservation Practices 1946

UNITED STATES DEPARTMENT OF AGRICULTURE
PRODUCTION AND MARKETING ADMINISTRATION
FIELD SERVICE BRANCH

Washington, D. C.

Issued October 1945

FOREWORD

Wartime demands have placed a heavy strain upon the Nation's farmland. Virginia farmers put their "hands to the plow" and went all-out to produce their share of the crop and livestock products needed to win the war. In this magnificent effort, they willingly subjected their land to undue erosion hazards and excessive soil depletion by growing record acreages of row crops.

Now that the war is over, farmers once again can turn their efforts to restoring the fertility of their soil. Fertile land is essential to production of adequate supplies of agricultural products necessary to keep us a strong and healthy people.

The 1946 Agricultural Conservation Program for Virginia is aimed at assisting farmers in carrying out a sufficient volume of those practices which will rebuild and conserve the State's most valuable resource—its native soil.

The practices included in the 1946 Program are based upon combined recommendations of community, county, and State committeemen of the Field Service Branch; representatives of other agricultural agencies; and other farm leaders.

VIRGINIA STATE COMMITTEE

R. B. Bridgforth, *Chairman*
M. T. Pratt
D. D. Ball
C. D. Jordan
L. B. Dietrick, *Director of Extension*

VIRGINIA STATE TECHNICAL COMMITTEE

R. B. Bridgforth, *Field Service Branch*
Lyman Carrier, *Soil Conservation Service*
P. H. DeHart, *Field Service Branch*
L. B. Dietrick, *Extension Service*
A. W. Drinkard, *Experiment Station*
J. A. Ewing, *Bureau of Agricultural Economics*
D. J. Howard, *Vocational Agriculture*
M. C. Howard, *Forest Service*
T. B. Hutcheson, *Agronomy Department, V. P. I.*
L. M. Walker, Jr., *State Department of Agriculture*
J. S. Wills, *Farm Security Administration*

VIRGINIA HANDBOOK OF CONSERVATION PRACTICES—1946

The 1946 Agricultural Conservation Program offers assistance to Virginia farmers to restore and conserve the fertility of the soil through the use of conservation practices. The program year begins January 1, 1946, and ends December 31, 1946.

In order to encourage the performance of practices which are needed most, the county committee may select from the list of approved practices those which will be applicable to farms in the county.

Each farmer should confer with his county or community committeeman to plan how the Program can be of greatest assistance in obtaining the maximum conservation on his farm.

CONSERVATION MATERIALS AND SERVICES

Liming materials, superphosphate, and other designated conservation materials and services may be furnished by the Field Service Branch, Production and Marketing Administration, in lieu of cash payments. The Government will pay part of the cost of the material or service and the farmer will pay part.

PRACTICES AND PAYMENTS

Assistance under the Program will be available to the extent approved by the county committee for carrying out practices listed herein on any farm during the 1946 program year. Payments under this program are subject to the appropriation hereafter provided for this purpose by the Congress.

To qualify for payment, each practice must be performed in accordance with approved specifications for the practice and must be in keeping with good farming methods for the locality. The county committee will require evidence (bills, receipts, seed tags, etc.) to be submitted by the farmer in support of reports of practices carried out with materials or seeds, excluding conservation materials furnished by the Field Service Branch, Production and Marketing Administration.

APPLICATION OF MATERIALS

1. **Liming materials.**—Applying standard ground limestone, or equivalent material, to farmland.

Credit rate: Not more than 80 percent of average cost delivered to farms in the county.

Specifications: Standard ground limestone shall contain calcium and magnesium carbonates equivalent to not less than 85 percent calcium carbonate and must be fine enough so that not less than 90 percent will pass through a 10-mesh sieve. Ground limestone suitable for agricultural use but not meeting the above specifications will be considered as limestone screenings.

670974—45

This farmer has learned the value of applying lime to his farmland

For the purpose of this practice the following will be considered to be equivalent to **one ton** of standard ground limestone.

1,400 pounds of burned or hydrated lime;
2,000 pounds of marl or baked or ground oyster shells meeting the chemical and mechanical specifications for standard ground limestone;
3,000 pounds of ground limestone screenings;
3,000 pounds of industrial lime sludge.

The application of liming materials contained in commercial fertilizers will not qualify for payment under this practice.

Liming materials should not be applied to land on which lime has been applied during the past 5 years unless a recent soil analysis indicates a need for additional materials.

Phosphate applied to permanent pastures increases growth and provides nutritious grazing

2. **Phosphate.**—Applying phosphate materials to eligible crops.

Credit rate: a. Elizabeth City, Nansemond, Norfolk, Princess Anne, Warwick, and York—**3¾ cents per pound** of available P_2O_5. This rate is equivalent to 75 cents per 100 pounds of 20 percent superphosphate.

b. Amelia, Brunswick, Charles City, Chesterfield, Dinwiddie, Fairfax, Gloucester, Greenville, Hanover, Henrico, Isle of Wight, James City, New Kent, Northampton, Prince George, Prince William, Southampton, Surry, and Sussex—**4 cents per pound** of available P_2O_5. This rate is equivalent to 80 cents per 100 pounds of 20 percent superphosphate.

c. Accomac, Albermarle, Amherst, Appomattox, Augusta, Bedford, Botetourt, Buckingham, Campbell, Caroline, Charlotte, Clarke, Culpeper, Cumberland, Essex, Fauquier, Fluvanna, Franklin, Frederick, Goochland, Greene, Halifax, Henry, King & Queen, King George, King William, Lancaster, Loudon, Louisa, Lunenburg, Madison, Mathews, Mecklenburg, Middlesex, Nelson, Northumberland, Nottoway, Orange, Page, Patrick, Pittsylvania, Powhatan, Prince Edward, Rappahannock, Richmond, Roanoke, Rockbridge, Rockingham, Shenandoah, Spotsylvania, Stafford, Warren, and Westmoreland—**4¼ cents per pound** of available P_2O_5. This rate is equivalent to 85 cents per 100 pounds of 20 percent superphosphate.

d. Bath and Highland—**4½ cents per pound** of available P_2O_5. This rate is equivalent to 90 cents per 100 pounds of 20 percent superphosphate.

e. All other counties—**4¾ cents per pound** of available P_2O_5. This rate is equivalent to 95 cents per 100 pounds of 20 percent superphosphate.

Specifications: Phosphate materials may be applied **only** to:

a. Permanent pasture;

b. The following legumes and grasses seeded **alone** in the fall of 1945 or during the 1946 program year: perennial or biennial legumes, perennial grasses, or annual lespedeza;

c. The same crops included under (b) above seeded **with a small grain nurse crop** in the fall of 1945 or in the spring of 1946, if applied after the small grain is harvested, or, if not harvested, after June 30, 1946; or

d. Winter legumes or ryegrass seeded after June 30, 1946, with or without a nurse crop.

3. **Potash.**—Applying potash materials to eligible crops.

Credit rate: 3 cents per pound of available K_2O. This rate is equivalent to $1.50 per 100 pounds of 50 percent muriate of potash.

Specifications: Same as for phosphate under practice 2.

COVER CROPS

4. **Winter cover crops.**—Establishing a winter cover crop in the fall of 1946 from seedings of crimson clover, hairy vetch, Austrian winter peas, annual ryegrass, or a mixture consisting solely of these crops.

Credit rate: Payment will be made at the following rates for winter cover crops established with seed not furnished by the Field Service Branch.

Crop	Rate per acre	Recommended seeding rates per acre (lbs.)
a. Crimson clover	$3.00	20–25
b. Hairy vetch	2.50	20–30
c. Austrian winter peas	2.00	40–60
d. Annual ryegrass	2.00	20–30

Payment for mixtures of the above crops will be made at the lowest rate applicable to any crop included in the mixture, except that if the mixture includes a full seeding of a single crop the credit rate for that crop will apply.

The credit rate for use of seed furnished by the Field Service Branch will be the same as the deduction rate.

Specifications: The seeding must be performed in accordance with good farming practice, which shall include: A well-prepared seedbed; a full seeding of adapted seed; inoculation for legume crops unless a recent crop of the same legume or another requiring the same inoculant has been grown on the land seeded; and the application of liming material, phosphate, or potash where necessary to insure a good stand and good growth.

Credit will be allowed for a full seeding of one or more of these crops with a small grain nurse crop. Ryegrass is limited to cropland. No credit will be allowed under this practice for any acreage on which the county committee determines that a good stand and good growth was not obtained.

5. **Small grains.**—Establishing a satisfactory winter cover crop from seedings of rye, oats, barley, wheat, or mixtures of these crops, made in the fall of 1945—**$1.50 per acre.**

Specifications: A satisfactory cover will be considered to have been established when the land is uniformly covered with a growth from which a reasonable ton-

Winter cover crops protect the land from erosion and increase fertility when turned as green manure

nage of forage could be harvested. The crop must not be harvested for grain or cut for hay. Seed should be sown sufficiently early to permit plants to withstand winter freezes.

6. **Summer legumes alone.**—Turning under or leaving on the land a good stand and good growth of soybeans or cowpeas, or a mixture of these legumes, planted during the spring or summer of 1946, in the counties of Accomack, Charles City, Caroline, Elizabeth City, Essex, Gloucester, Hanover, Henrico, James City, King and Queen, King William, Lancaster, Middlesex, Nansemond, New Kent, Norfolk, Northampton, Northumberland, Princess Anne, Richmond, Warwick, Westmoreland, and York—**$1.50 per acre.**

Specifications: The land should be covered with a growth from which a reasonable tonnage of forage could be obtained if harvested. The forage must be left on the land during the winter or turned under and followed by a fall-seeded crop. Soybeans or cowpeas interplanted with row crops or from which the seed are harvested will not qualify for payment under this practice.

7. **Summer nonlegumes.**—Turning under a good stand and good growth of millet, sorghum, sudan grass, sown corn, or a mixture of

these crops, planted during the spring or summer of 1946, in the counties of Accomack, Nansemond, Northampton, Norfolk, and Princess Anne—**$1.50 per acre.**

Specifications: The land should be covered with a growth from which a reasonable tonnage of forage could be obtained if harvested. The forage must be turned under and followed by a fall-seeded crop.

EROSION CONTROL

8. **Contour stripcropping.**—Establishing on the contour alternate strips of row crops and sown, close-drilled or sod crops—**$1.50 per acre.**

Specifications: The strips must be laid out by or under the supervision of a qualified person approved by the county committee and when completed must meet the detailed specifications approved by the State Committee. Credit will be allowed only for the acreage on which the strips are first established in 1946. At least 25 percent of the area in strips must be in grass.

9. **Terracing.** Constructing standard terraces—**90 cents per 100 linear feet.**

Specifications: The terraces must be laid out by or under the supervision of a qualified person approved by the county committee and when completed must meet the detailed specifications approved by the State Committee. Adequate outlets must be provided for all terraces. Terraces must have a minimum cross-sectional channel area of at least 7 square feet.

10. **Sod waterways.**—Establishing permanent sod waterways—**75 cents per 1,000 square feet.**

Specifications: (a) The sod waterway area must be seeded to a mixture of perennial grasses and legumes or other close-growing perennial plants such as sericea lespedeza or kudzu. When established these areas must be permanently maintained by proper fertilization, mowing, and liming when necessary.

(b) Sod waterways must be established in natural draws and must not be less than 12 feet wide for seeded depressions and not less than 20 feet wide for other waterways.

(c) The surface must be graded so as to eliminate high places which will concentrate water in limited areas and proper outlets for final disposal of the water must be provided.

(d) The establishment of such areas in permanent pasture will not qualify for payment under this practice.

(e) If the waterways are in excess of 150 feet in width, only that area up to 150 feet will be considered for payment.

DRAINAGE

11. **Open ditch drainage.**—Constructing or enlarging drainage ditches—**8 cents per cubic yard of dirt removed,** not to exceed 8 cents per linear foot.

Specifications: The ditches must be laid out by or under the supervision of a qualified person approved by the county committee and when completed must meet the detailed specifications approved by the State Committee. Payment will not be made with respect to the dirt removed from any ditch unless adequate provision is made for the entrance of the water into and out of the ditch. No credit will be allowed for cleaning out a ditch.

12. **Tile Drainage.**—Installing field drainage tile.

Credit rate per linear foot:

a. 4- or 5-inch tile—**3 cents**
b. 6-inch tile—**5 cents**
c. 8-inch tile—**7½ cents**

Specifications: The tile drainage system must be laid out by, or under, the supervision of a qualified person approved by the county committee and when completed must meet the detailed specifications approved by the State Committee. This practice is applicable only to farmland suitable to cultivated crops, pasture or improved meadows.

FORESTRY

13. **Forest tree planting.**—Planting approved species of forest trees—**$5.00 per acre,** not to exceed 4 acres per farm.

Specifications: The following species will qualify: Shortleaf pine, loblolly pine, white pine, Virginia pine, black or yellow locust, yellow poplar, white ash, and red cedar.

Trees should be planted at the rate of 1,000 per acre (spaced approximately 6½ feet by 6½ feet) in accordance with approved tree planting practices common to the State of Virginia. Plantings should show a survival of at least 700 trees per acre evenly distributed over the land on or after August 1, 1946. The trees must be fenced to protect from grazing and must be protected from fire.

14. **Forest stand improvement.**—Improving stands of forest trees—**$3.00 per acre,** not to exceed 6 acres per farm.

Specifications: This practice must be supervised by a public forester. It will consist of removal of trees of undesirable species or form; thinning, where necessary

Harvesting seed of urgently needed legumes and grasses

in stands where trees average not less than 2 inches in diameter at breast height nor more than 12 inches in diameter at breat height; and by the removal of the defective and deformed live trees. Areas being improved must be protected from fire and grazing stock. Average spacing in feet shall be no more than diameter of tree at breast height in inches plus five.

SEED HARVESTING

15. **Harvesting seed.** Harvesting seed from a good stand and good growth of crimson clover, red clover, alsike clover, annual ryegrass, hairy vetch, or mixtures of hairy vetch and rye—**$3.50 per acre,** not to exceed 10 acres per farm.

Specifications: The yield of seed obtained must be reasonable for the community. In the case of mixtures of hairy vetch and rye the amount of vetch seed in the mixture harvested should be normal for the community.

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APPLICATION OF MATERIALS

1. **Liming materials.**—Applying standard ground limestone, or equivalent material, to farmland.

Credit Rate

County	Credit rate per ton	County	Credit rate per ton	County	Credit rate per ton
Barbour	$3.75	Kanawha	$3.60	Preston	$3.60
Berkely	1.20	Lewis	3.60	Putnam	3.35
Boone	3.90	Lincoln	3.90	Raleigh	3.60
Braxton	4.40	Logan	3.90	Randolph	3.60
Brooke	3.60	McDowell	3.60	Ritchie	3.75
Cabell	3.40	Marion	3.60	Roane	4.00
Calhoun	4.55	Marshall	3.75	Summers	3.60
Clay	4.00	Mason	3.20	Taylor	3.60
Doddridge	3.85	Mercer	2.60	Tucker	3.60
Fayette	3.40	Mineral	2.80	Tyler	3.75
Gilmer	4.00	Mingo	3.90	Upshur	3.70
Grant	3.35	Monongalia	3.00	Wayne	3.80
Greenbrier	3.40	Monroe	2.95	Webster	4.40
Hampshire	2.75	Morgan	2.20	Wetzel	3.75
Hancock	3.50	Nicholas	4.00	Wirt	4.00
Hardy	3.15	Ohio	3.60	Wood	3.75
Harrison	3.60	Pendleton	3.60	Wyoming	3.60
Jackson	3.60	Pleasants	3.60		
Jefferson	1.20	Pocahontas	3.35		

Specifications: Standard ground limestone shall contain calcium and magnesium carbonates equivalent to not less than 85 percent calcium carbonate and must be fine enough so that not less than 90 percent shall pass through a 10-mesh sieve. All the finer particles obtained in the production process shall be included. Ground limestone not meeting the above specifications will be considered as limestone screenings.

For the purpose of this practice the following will be considered to be equivalent to **one ton** of standard ground limestone:

1,400 pounds of burned or hydrated lime;

2,000 pounds of agricultural marl meeting the chemical specifications for standard ground limestone and being in mechanical condition for spreading by the spreading equipment normally utilized in the area in which the material is to be used;

3,000 pounds of standard slag containing calcium and magnesium carbonates equivalent to not less than 60 percent of calcium carbonate and fine enough so that not less than 80 percent shall pass through a 10-mesh sieve; all the finer particles obtained in the production process shall be included;

3,000 pounds of ground limestone screenings.

The application of liming materials contained in commercial fertilizers will not qualify for payment under this practice.

Liming materials should not be applied to land on which one or more tons per acre has been applied during the past 3 years unless a recent soil analysis indicates a need for additional materials.

2. **Phosphate.**—Applying phosphate materials to eligible crops.

Credit rate:

a. BERKELEY and JEFFERSON—**4 cents per pound** of available P_2O_5. This rate is equivalent to 80 cents per 100 pounds of 20 percent superphosphate.

b. GRANT, HAMPSHIRE, HARDY, MORGAN, and PENDLETON—**4½ cents per pound** of available P_2O_5. This rate is equivalent to 90 cents per 100 pounds of 20 percent superphosphate.

c. All other counties—**4¾ cents per pound** of available P_2O_5. This rate is equivalent to 95 cents per 100 pounds of 20 percent superphosphate.

This West Virginia farmer has learned the value of applying liming material to his pasture

Phosphate applied to permanent pastures increases growth and provides nutritious grazing

Specifications: Phosphate materials may be applied **only** to:

a. Permanent pasture;

b. The following legumes and grasses seeded **alone** in the fall of 1945 or during the 1946 program year; perennial or biennial legumes, perennial grasses, or annual lespedeza;

c. The same crops included under "b" above seeded **with a small grain nurse crop** in the fall of 1945 or in the spring of 1946, if applied after the small grain is harvested, or, if not harvested, after June 30, 1946; or

d. Winter legumes or ryegrass seeded after June 30, 1946, with or without a nurse crop.

COVER CROPS

3. **Winter cover crops.**—Establishing a winter cover crop in the fall of 1946 from seedings of crimson clover, hairy vetch, or annual ryegrass.

Winter cover crops protect the land from erosion and increase fertility when turned as green manure.

Credit rate: Payment will be made at the following rates for winter cover crops established with seed not furnished by the Field Service Branch:

a. Crimson clover—**$2.50 per acre.**

b. Hairy vetch—**$3.50 per acre.**

c. Annual ryegrass—**$2.00 per acre.**

Payment for mixtures of the above crops will be made at the lowest rate applicable to any crop included in the mixture, except that if the mixture includes a full seeding of a single crop the credit rate for that crop will apply.

The credit rate for use of seed furnished by the Field Service Branch will be the same as the deduction rate.

Specifications: The seeding must be performed in accordance with good farming practice, which shall include: A well-prepared seedbed; a full seeding of adapted seed; inoculation for legume crops unless a recent crop of the same legume or another requiring the same inoculant has been grown on the land seeded; and the application of liming material, phosphate or potash where necessary to insure a good stand and good growth.

Credit will be allowed for a full seeding of one or more of these crops with a small grain nurse crop. Ryegrass is limited to cropland and orchards. No credit will be allowed under this practice for any acreage on which the county committee determines that a good stand and good growth was not obtained. The following seeding rates per acre are recommended for average conditions:

Crimson clover alone, 15 pounds; vetch alone, 25 pounds, or a mixture consisting of eight pounds of crimson clover and 20 pounds of vetch; annual ryegrass, 25 pounds.

4. **Small grains.**—Establishing a satisfactory winter cover crop from seedings of rye, oats, barley, wheat or a mixture of these crops, from seedings made in the fall of 1945—**$1.50 per acre.**

Specifications: A satisfactory cover will be considered to have been established when the land is uniformly covered with a growth from which a reasonable tonnage of forage could be harvested.

No payment will be made for small grains when harvested for grain or cut for hay. Recommendation of the West Virginia Experiment Station should be followed with respect to seedbed preparation, seeding rates per acre and planting dates. Seed should be sown sufficiently early to permit plants to withstand winter freezes.

EROSION CONTROL

5. **Contour stripcropping.**—Contour farming of row crops and sown, close-drilled or sod crops in alternate strips—**75 cents per acre.**

Specifications: The strips shall be on the contour following properly laid-out terraces or guide lines established by a qualified person approved by the county committee.

6. **Diversion ditches.**—Constructing diversion ditches for which proper outlets are provided—**$3.00 per 100 linear feet.**

Specifications: Approval of the county committee, including detailed specifications must be obtained before performing this practice. To qualify for payment each diversion ditch must be laid out and constructed under the general supervision of a qualified person approved by the county committee and when completed, must meet the detailed specifications.

SEED HARVESTING

7. **Harvesting seeds.**—Harvesting seed from a good stand of alfalfa, red clover, or alsike clover—**$3.50 per acre,** not to exceed 25 acres per farm.

Specifications: The harvesting must be done in a workmanlike manner and a yield must be obtained which is deemed by the county committee to be reasonable for the community.

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